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1955

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GENERAL EMBRYOLOGICAL INFORMATION SERVICE

1955

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Issue of the Hubrecht Laboratory

seat of the

„Institut International d'Embryologie"

(Embriological section of the I.U.B.S.)

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INTRODUCTION

Subscribers are now receiving the sixth full issue of the General Embryological Information Service, in which all the data over the year 1955 are published. We have tried to make this issue as complete as possible by extending our list of collaborators. New relations were opened with India, Australia and New Zealand, and with several institutes in Japan. Contact was made with several Universities in Latin America, while contact was re-established with Russia and Czecho-Slovakia. We also tried to extend our relations with medical and veterinary institutions where embryological work is done by some staff members only. This action has led to an increase in the number of collaborators from 946 (1953) to 1095 (1955), and to an increase of the number of collaborating institutes from 349 (1953) to 439 (1955).

The biennial collecting of data for the G.E.I.S. makes it more difficult to keep our list of addresses up to date. We therefore request all collaborators to keep us informed about any change in address or position.

The preparation of the extensive manuscript of the Normal Table of *Xenopus laevis* (see further under General questions and announcements on page 184) has heavily overloaded our staff this summer, resulting in a delay in the preparation of the manuscript of the G.E.I.S. We offer all subscribers our apologies for this delay in the appearance of this issue.

As mentioned in the 1953 issue, the subscription for the 1955 issue of the G.E.I.S. will include the full issue 1955 *and* the supplement 1956. In the supplement 1956 new data for the "Supply and Demand Service for Laboratory Animals" will be published, so that those interested are requested to send in all available data before August 1st, 1956.

We should like to acknowledge our sincere thanks to those collaborators who have helped us to open new relations with embryologists not previously included.

P. D. NIEUWKOOP

LIST OF NAMES AND ADDRESSES

with Subjects in Preparation

(alphabetical order)

ABELOOS, M. Prof. — Lab. de Zool. génér. de la Fac. des Sci. et Stat. marine d'Endoume (Marseille), Place Victor Hugo, MARSEILLE, France

ABERCROMBIE, M. M.A., B.Sc. — Dept of Embryol., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)

- a. Transplantation experiments on blastoderm tissue culture. *Gallus domesticus (Aves)*
- b. Study of cell relations in tissue culture. *Gallus domesticus (Aves)* (in collaboration with Miss J. E. SANTLER and Miss H. M. KARTHAUSER)
- c. Regeneration and induced proliferation in the adult. *Rattus norvegicus (Rodentia)* (in collaboration with Miss J. E. SANTLER)

ADAMS, Miss E. C. B.A. — Dept of Pathol., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.

- a. Histochemical observations on early fertilized ova of less than 14 days age. *Homo (Primates)* (in collaboration with J. ROCK, W. J. MULLIGAN and A. T. HERTIG)
- b. Histochemical studies on developing embryos. *Homo (Primates)* (in collaboration with A. T. HERTIG and D. G. McKAY)
- c. Histochemical studies on abnormal trophoblast with special reference to hydatidiform mole and chorionepithelioma. *Homo (Primates)* (in collaboration with D. G. McKAY, K. BENIRSCHKE, W. BARDAWIL and A. T. HERTIG)

ADAMSTONE, F. B. Ph.D., Prof. — Dept of Zool., Univ. of Illinois, URBANA, Ill., U.S.A.

- a. Development of the amnion. *Gallus domesticus (Aves)*

ADELMANN, H. B. F.I.I.E., Dr, Prof. — Dept of Zool., Cornell Univ., ITHACA, N.Y., U.S.A.

AGRELL, I. P. S. Dr Fil. — Zoophyiol. Inst., Univ. of LUND, Sweden

- a. Nucleic acid metabolism during development. *Paracentrotus (Echinoidea), Gallus (Aves)*
- b. Biochemistry of mitosis in tissue culture cells. *Gallus (Aves)*

ÅKESSON, B. Fil. mag. — Embryol. Dept, Zool. Inst. of the Univ. of Lund, LUND, Sweden

AKETA, K. M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan

- a. Biochemistry of fertilization with special reference to carbohydrate metabolism. *Hemicentrotus pulcherrimus, Pseudocentrotus depressus (Echinoidea)*
- b. Cytochemistry of egg cortex. *Oryzias latipes (Teleostei)*

ALBRIGHT, J. F. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.

- a. Immunochemical and biochemical analysis of the development of the anterior pituitary. *Gallus gallus (Aves)*

b. Analysis of the development and role of sarcosomes in the heart-forming areas of the early embryo. *Gallus gallus (Aves)*

ALDEN, R. H. Ph.D., Prof. — Div. of Anat., Med. Units Div., Fac. of Biol. Sci., Univ. of Tennessee, MEMPHIS 3, Tenn., U.S.A.

a. Study of egg transport and implantation; early development of trophoblast; embryo-maternal relationships during nidation. *Mus (Rodentia)*

ALEXANDER, G. M.Ag.Sc. — C.S.I.R.O. Sheep Biol. Lab., Great Western Highway, PROSPECT (P.O.Box 144, Paramatta), N.S.W., Australia

a. Investigations of the physical and physiological relations between maternal and embryological tissues. *Ovis (Artiodactyla)*

ALLANSON—BAXTER, Mrs M. B.Sc., Ph.D. — Biol. Dept., Med. School, St Mary's Hosp., Paddington, LONDON W. 2, England (U.K.)

a. Histogenesis of endocrine glands and reproductive tract. *Oryctolagus cuniculus (Lagomorpha)*

ALTSCHUL, R. M.D., Prof. — Dept of Anat., Univ. of Saskatchewan, SASKATOON, Canada

a. Tissue culture. Influence of biostimulators on cell growth.

AMANUMA, A. M.Sc. — Lab. Exper. Embryol., Inst. of Polytechn., Osaka City Univ., Minami-Ogimati, Kita-ku, OSAKA, Japan

a. The effect of androgenic hormone upon the differentiation of the gonad. *Hynobius nebulosus (Urodela)*

AMOROSO, E. C. — Dept of Anat., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.

a. Studies of the placenta. Histochemistry. *Equus caballus (Perissodactyla)* (in collaboration with E. W. DEMPSEY and G. B. WISLOCKI)

AMPRINO, R. M. M.D., Prof. — Inst. of human Anat., Corso Massimo d'Azeglio 52, TORINO, Italy

a. Regulative capacities of the wing and limb anlage. *Gallus domesticus (Aves)*

b. Regulative and regenerative capacities of the primary optic vesicle. *Gallus domesticus (Aves)*

c. Effects of the removal of the anlage of the pineal body on the development. *Gallus domesticus (Aves)*

ANCEL, P. A. F.I.I.E., Dr, Prof. (Honor., Emer.) — Inst. de Biol. physico-chimique, Fac. de Méd., 13 Rue Pierre Curie, PARIS Ve, France
— 61 Avenue Niel, PARIS, France

ANDERS, G. Dr Phil. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz

a. Developmental physiology and genetics of the "lozenge" alleles. *Drosophila melanogaster (Diptera)*

ANDRES, G. Dr — Max Planck-Inst. für Biologie, Spemannstr. 34, TÜBINGEN, Württemberg, Deutschland

a. Untersuchung von Wachstumskorrelationen. *(Anura), Gallus (Aves)*

b. Untersuchungen über die Entwicklung von Farbmustern mit Hilfe xenoplastischer Transplantationen. *Bombinator, Hyla, Rana, Xenopus (Anura)*

ANDREW, Miss A. B.Sc. — Dept of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, South Africa

a. Early embryology. *Tatera brantsi (Rodentia)*

ANTON, H. J. Dr — Zool. Inst. der Univ. Köln, Kerpenerstr. 13, KÖLN-LINDENTHAL, Deutschland

a. Die Regenerationsleistungen heteroplastischer Keimblattchimären. *Triturus vulgaris, cristatus, alpestris (Urodela)*
b. Unverträglichkeitsreaktionen bei heteroplastischen Transplantationen. *Triturus vulgaris, cristatus, alpestris (Urodela)*
ARIËNS KAPPERS, J. M.D., Prof. —Anat.-Embryol. Lab. der Rijks Univ., Oostersingel 69, GRONINGEN, Holland
a. Cytological and histochemical development of choroid plexus. *Homo*
ARMSTRONG, P. B. B.S., M.D., Prof. — Dept of Anat., School of Med., State Univ. of New York, 766 Irving Ave, SYRACUSE 10, N.Y., U.S.A.
a. Function in the developing liver. *Ambystoma punctatum (Urodela)* and *Amiurus nebulosus (Teleostei)*
ASAYAMA, S. M.Sc., D.Sc., Prof. — Lab. Exper. Embryol., Inst. of Polytechn., Osaka City Univ., Minami-Ogimati, Kita-ku, OSAKA, Japan
a. Effects of various proteinic and sterolic hormones upon the sex-differentiation of the gonad. *Hynobius nebulosus* (Schlegel) *(Urodela)*
ATLAS, M. B.S., A.M., Ph.D., Assoc. Prof. — Dept of Biol., Yeshiva Univ., 186th St and Amsterdam Ave, NEW YORK 33, N.Y., U.S.A.
ASSENMACHER, I. Dr en Méd. — Lab. d'Histophysiol., Coll. de France, Place Marcelin Berthelot, PARIS Ve, France
a. Développement et physiologie de l'hypothalamus et de l'hypophyse. *Anas (Aves)*
ATTARDO, Miss C. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
a. Development and life cycle of hyperparasites. *(Crustacea)*
AUBRY, Miss R. Lic. ès Sci. — Lab. de Biol., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Etude de la lignée germinale. *(Amphibia)*
b. Etude de l'hermaphroditisme. *(Gastropoda)*
AUSTIN, C. R. M.Sc., B.V.Sc. — Med. Research Council, Mill Hill, LONDON, England (U.K.)
AVEL, M. F.I.I.E., Dr, Prof. — Fac. des Sci. de Bordeaux, 40 Rue Lamartine, TALENCE (Gironde), France
AVIS, F. A.B. — Roscoe B. Jackson Memorial Lab., Box 558, BAR HARBOR, Me, U.S.A.
BACKHOUSE, K. M. M.B., B.S. — Dept of Anat., St Bartholomew's Hosp. Med. Coll., Charterhouse Square, LONDON E.C. 1, England (U.K.)
a. Dental lamina and its differentiation. *(Mammalia)*
b. Gubernaculum testis and testicular descent. *(Mammalia)*
BÄCKSTRÖM, S. A. A. Fil. lic. — Wenner-Grens Inst. for exper. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden
a. Reducing and oxidizing substances in development *(Echinoidea), Xenopus (Anura)*
BAFFONI, G. M. Dr — Lab. di Istol. ed Embriol. della Fac. di Sci., Univ. di Roma, Via Borelli 50, ROMA, Italia
a. Growth and differentiation of the nervous cell.
BAGIŃSKI, S. M. D. — Inst. of Histol. and Embryol., Acad. of Med., Narutowicza 60, ŁÓDŹ, Poland *Gallus (Aves)*
a. Investigations of experimentally provoked monstruosities in embryos.
b. Influence of azo-dyes on the development of embryos. *Gallus (Aves)*

BAILEY, J. C. A.B., M.A., Ph.D. — Section Devel. and Regen., Lab. of Neuroanatomical Sci., NINDB, Nat. Inst. of Health, BETHESDA, Md, U.S.A.
a. Effects of neonatal asphyxia with emphasis on mental retardation; experimental studies. Various species.

BAIOCCHI, O. — Lab. d'Hormonol. et de Cytol., Ecole Pratique des Hautes Etudes, Hôpital Broca, 111 Rue L. M. Nordmann, PARIS XIIIe, France
a. Décoloration du dichlorophenol indophenol (DPIP) par l'ovocyte. Etude par micro-injection quantitative. *Mus musculus (Rodentia)* (en collaboration avec R. MORICARD et Miss M. M. C. S. GOTHIÉ)

BALINSKY, B. I. F.I.I.E., Dr Biol.Sci., Prof. — Dept of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, South Africa
a. The eye-lens correlation. *Xenopus laevis, Bufo regularis, Bufo carens, Phrynobatrachus natalensis, Pyxicephalus delalandii, Pyxicephalus adspersus (Anura)*
b. Heteroplastic transplantation of ectoderm between different species. *(Anura)*

BALTUS, Miss E. Lic. en Sci.Zool. — Lab. de Morphol. anim., Univ. libre de Bruxelles, 1850 Chaussé de Wavre, BRUXELLES-Auderghem, Belgique
a. Study on isolated nucleoli. *Asterias Rubens (Asteroidea, Echinodermata)*

BALTZER, F. F.I.I.E., Dr, Prof. (Emer.), Dr h.c. Strassb., Dr h.c. Freib. (Baden) — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz
a. Letalität und Vererbungsrichtung bei Bastarden. *(Echinoidea)* (mit verschieden Mitarbeitern)
b. Xenoplastische Chimären. *(Amphibia)* (in Zusammenarbeit mit P. S. CHEN, Zürich, W. HENZEN und H. EYMANN)

BARDAWIL, W. — Dept of Pathol., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
a. Histochemical studies on abnormal trophoblast with special reference to hydatidiform mole and chorionepithelioma. *Homo (Primates)* (in collaboration with A. T. HERTIG, D. G. McKAY, K. BENIRSCHKE and Miss E. C. ADAMS)

BARIGOZZI, C. Dr Sci., Prof. — Ist. di Genet., Univ. di Milano, Via Celoria 10, MILANO, Italia
a. Development of tumours. *(Urodela)*
b. Development of melanomes with different genotypes. *Drosophila (Diptera)*

BARRY, T. H. D.Sc. — Dept of Zool., Fac. of Sci., Univ. of Pretoria, PRETORIA, South Africa
a. Development of the membrane bones of the skull with special reference to the septomaxillary. *Bufo angusticeps (Anura)*

BARTELMEZ, G. W. Ph.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
a. Blood supply of uterus. *Macaca mulatta (Primates)*
b. Early development of optic vesicle. *(Rodentia, Primates)*
c. Earliest development of oral hypophysis. *(Primates)*
d. Effects of rubella on foetus. *Homo sapiens (Primates)*

BARTH, L. G. F.I.I.E., Ph.D., Prof. — Dept of Zool., Fac. of pure Sci., Columbia Univ., Broadway and 116th St, NEW YORK 27, N.Y., U.S.A.
a. Chemical embryology of the egg. *(Amphibia)*

b. Determination of polarity. *(Hydroidea* and *Ascidiae)*

c. Changes in proteins during development. *Rana pipiens (Anura)*

BARTH, Mrs L. JAEGER A.B., M.A., Ph.D. — Dept of Zool., Fac. of pure Sci., Columbia Univ., Broadway and 116th St, NEW YORK 27, N.Y., U.S.A.

a. Chemical embryology of the egg. *Rana pipiens (Anura)*

b. Changes in proteins during development. *Rana pipiens (Anura)*

BARTHELEMY, Miss A. — Lab. d'Histol., Dép. d'Embryol., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

BAST, T. H. B.A., Ph.D., Prof. — Dept of Anat., Univ. of Wisconsin, MADISON, Wis., U.S.A.

a. Embryology and anatomy of the middle and internal ear, and the mandible. *Homo (Primates)*

BATTAGLIA, B. Sc.D. — Ist. di Zool. e Anat. comp., Fac. di Sci., Via Loredan 10, PADOVA, Italia

a. Cytochemical aspects of typical and atypical spermatogenesis. *(Prosobranchiata, Gastropoda)*

BATTLE, Miss H. I. Ph.D., Prof. — Dept of Zool., Univ. of Western Ontario, LONDON, Ont., Canada

a. Effects of urethane (ethyl carbamate) on early developmental processes. *Salmo trutta fario, Brachydanio rerio (Teleostei)*

b. A survey of the larval and young fish of central lake Erie. *(Teleostei)*

c. Effects of urethane (ethyl carbamate) on development. *Rana pipiens (Anura)*

d. Effects of urethane on mitochondria in blastomeres. *Brachydanio rerio (Teleostei)*

e. Effects of 3 cm. microwaves on developing fish. *Salmo trutta fario (Teleostei)*

BATTY, Th. A.B. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kans., U.S.A.

a. Development of all systems in relation to behaviour. *Opsanus tau (Teleostei)* (in collaboration with H. C. TRACY and J. WINBLAD)

b. Development of the gastro-intestinal tract in relationship to behaviour. *Opsanus tau (Teleostei)*

c. Development of the skeletal, blood vascular, and muscular systems in relationship to behaviour. *Opsanus tau (Teleostei)*

BAUD, C. A. Dr Méd. — Inst. d'Anat., Fac. de Méd., Univ. de Genève, 20 Rue Ecole de Méd., GENÈVE, Suisse

a. Etude du début de la formation des myofibrilles dans l'ébauche cardiaque. *Gallus (Aves)*

BAUMANN, J. A. Dr, Prof. — Inst. d'Anat., Fac. de Méd., Univ. de Genève, 20 Rue Ecole de Méd., GENÈVE, Suisse

a. Etude descriptive du développement de l'innervation du coeur. *Gallus (Aves)* (en collaboration avec J. GALLERA)

BAUTZMANN, H. Dr Med., Prof. — Anat. Inst. der Univ. Hamburg, Schottmüllerstr. 1, HAMBURG 20, Deutschland

a. Entwicklungsphysiologie der Primitiventwicklung. *(Vertebrata,* bes. *Amphibia)*

b. Vergleichende Amnionentwicklung und Histologie. *(Vertebrata)*

BAXTER, E. W. B.Sc., Ph.D. — Biol. Dept., Guy's Hosp. Med. School, LONDON S.E. 1, England (U.K.)

a. Biology, including development and metamorphosis. *Petromyzon (Cyclostomata)*
b. Chromosome numbers. *Lampetra planeri* and *Lampetra fluviatilis (Cyclostomata)*
c. Food changes during larval period of growth. *Ammocoetes (Cyclostomata)*

BEARD, R. G. A.B. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.
a. Biosynthesis of hemoglobin in the early blastoderm. *Gallus gallus (Aves)*

BEATTY, R. A. B.A., M.A., Ph.D. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURG 9, Scotland (U.K.)
a. Heteroploidy and parthenogenesis; egg transfer; operations on embryos. *Mus musculus (Rodentia), Oryctolagus cuniculus (Lagomorpha)*
b. Breeding of genetically tagged strains for use in experimental embryology. *Oryctolagus cuniculus (Lagomorpha)*
c. Heterospermic insemination and growth of embryo. *Oryctolagus cuniculus (Lagomorpha)*
d. Film of normal development. *Oryctolagus cuniculus (Lagomorpha)* (in collaboration with E. C. A. LUCEY)

BEAU, A. A. Dr, Prof. — Lab. d'Anat., Inst. Anat., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

BEAUFORT, H. L. de B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and CHR. P. RAVEN)

BEER, Sir G. R. de F.I.I.E., Prof. — British Museum (Natural History), Cromwell Road, LONDON, S.W. 7, England (U.K.)

BÉLANGER, L. F. Prof. — Dept of Histol., Fac. of Med., Univ. of Ottawa, OTTAWA, Quebec, Canada

BELLAIRS—MORGAN, Mrs M. R. B.Sc., Ph.D. — Dept of Zool. and Comp. Anat., St Bartholomew's Hosp. Med. Coll., Charterhouse Square, LONDON E.C. 1, England (U.K.)
a. Development of the foregut. *Gallus domesticus (Aves)*
b. Factors affecting foregut development. *Fundulus heteroclitus (Teleostei), Xenopus laevis (Anura)*

BENAZZI, M. Prof. ord. — Ist. di Zool. e Anat. comp. dell'Univ., Via A. Volta 4, PISA, Italia
a. Fertilization, pseudogamy, polyploidy and heredity. *(Tricladida, Turbellaria)*
b. Hybrids. *Triturus vulgaris* x *Tr. cristatus* and *Tr. helveticus (Urodela)*

BENAZZI—LENTATI, Mrs G. Lib. Doc. — Ist. di Zool. e Anat. comp. dell'Univ., Via A. Volta 4, PISA, Italia
a. Ovo- and spermatogenesis; fertilization and cytology. *(Tricladida, Turbellaria)*

BENIRSCHKE, K. M.D. — Dept of Pathol., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
a. The identification of the hormones produced (if any) by the fetal cortical zone of the adrenal gland. *Homo (Primates)*

b. Histochemical studies on abnormal trophoblast with special reference to hydatidiform mole and chorionepithelioma. *Homo (Primates)* (in collaboration with D. G. McKAY, A. T. HERTIG, W. BARDAWIL and Miss E. C. ADAMS)

BENOIT, J. Dr en Méd., Dr ès Sci., Prof. — Lab. d'Histophysiol., Coll. de France, Place Marcelin Berthelot, PARIS Ve, France

BENOIT, J. A. A. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Etude expérimentale de la morphogénèse de la capsule otique. *Salmo (Teleostei), Gallus (Aves)*

BENZ, G. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz

a. Developmental physiology and biochemistry of lethal mutants. *Drosophil* spec. *(Diptera)*

BER, A. Dr, Prof. — Dept. of Endocrinol., Fac. of Med., Acad. of Łódź, Nowotki 137, ŁÓDŹ, Poland
(no embryological work in progress)

BERG, G. G. Ph.D. — Physiol. Section, Atomic Energy Proj., School of Med., Univ. of Rochester, P.O.Box 287, Sta. 3, ROCHESTER 20, N.Y., U.S.A.

a. Histochemical studies of development: substrate specificity and enzyme inactivation of inorganic meta- and polyphosphatases. *Rana, Mus (Vertebrata)*

BERG, W. E. A.B., M.S., Ph.D., Prof. — Dept of Zool., Univ. of Calif., BERKELEY 4, Cal., U.S.A.

a. Physiological studies of mosaic development. Metabolic and chemical characteristics of early cleavage blastomeres. *Mytilus edulis (Lamellibranchia), Ilyanassa obsoleta (Gastropoda), Styela montereyensis (Ascidiae)*

BERGEIJK, W. A. van M.S. — Dept of Zool., State Univ. of Iowa, IOWA CITY, Iowa, U.S.A.

a. Physiology of the ear during larval, metamorphic and adult stages. *(Amphibia)*

BERGQUIST, H. Ph.D. — c/o Inst. of Anat., Fac. of Med., Univ. of Gothenburg, GÖTEBORG, Sweden

a. Experimental investigations on the neural tube. *(Vertebrata)*

b. Ultramicroscopical investigations on the integument. *Homarus vulgaris (Crustacea)*

BERNSTEIN, G. S. B.A., M.A., Ph.D. — Dept. of Embryol., Div. of Biol., Calif. Inst. of Technol., PASADENA 4, Cal., U.S.A.

a. Physiology of fertilization. *(Amphibia)*

b. Life-span, motility and metabolism of spermatozoa. *(Echinodermata* and *Amphibia)*

BERRILL, N. J. Ph.D., D.Sc., Prof. — Dept of Zool., McGill Univ., MONTREAL, Quebec, Canada

BERTMAR, G. Fil.mag. — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden

a. Development and morphology of the skeleton of the head. *(Characidae, Teleostei)*

BIELAŃSKA—OSUCHOWSKA, Mrs Z. Mag. of Sci. — Inst. of Histol. and Embryol., Veter. Fac., ul. Grochowska 272, WARSZAWA, Poland

a. Histochemical studies on oogenesis. *Polydrosus* spec., *Phyllobius* spec. *(Curculionidae, Coleoptera)*

BIER, K. Dr rer. nat. — Inst. für Angewandte Zool. der Univ., Naturw. Fak., Röntgenring 10, WÜRZBURG, Deutschland

BIJTEL, Miss J. H. Dr Sci., M.D. — Anat.-Embryol. Lab. der Rijks Univ., Oostersingel 69, GRONINGEN, Holland
- a. Investigations concerning the process of outgrowth of the tail with special reference to the rôle of the chorda dorsalis and the tail mesoderm. *Ambystoma mex.*, *Triton taen.* and *Xenopus laevis (Amphibia)*
- b. Experiments concerning the factors which determine the normal course of the outgrowing pronephric duct. *Ambystoma mex.*, *Triton taen.* and *Xenopus laevis (Amphibia)*
- c. Development and phylogenetic origin of the columella auris. *Ambystoma mex.*, *Triton taen.* and *Xenopus laevis (Amphibia)*
- d. Development of the naso-lacrimal duct. *Xenopus laevis (Anura)*

BILLETT, F. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
- a. Differentiation of protein and nucleic acids in embryos. *(Amphibia)* (in collaboration with C. H. WADDINGTON and J. L. SIRLIN)

BILLINGHAM, R. E. M.A., D.Phil. — Dept of Zool. and Comp. Anat., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
- a. Development of capacity to respond to homologous antigens. *Gallus domesticus, Anas platyrhynchus (Aves), Mus Musculus, Rattus rattus, Cavia porcellus (Rodentia), Oryctolagus cuniculus (Lagomorpha), Bos taurus (Artiodactyla)*.

BIRGE, W. J. B.A., M.S., Ph.D. — Dept of Zool., Oregon State Coll., CORVALLIS, Ore., U.S.A.
- a. Differentiation and regulation in the brain and spinal cord. *Gallus domesticus (Aves)*

BISHOP, D. W. Ph.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
- a. Phyiology and metabolism of spermatozoa. *(Mammalia)*
- b. Intra-tubal factors influencing sperm motility and transport. *(Mammalia)*

BLACKLER, A. W. C. B.Sc. — Dept of Zool. and Comp. Anat., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
- a. Origin of germ cells. *Rana temporaria, Xenopus laevis (Anura)*
- b. Sterility. *Drosophila subobscura (Diptera)*

BLANDAU, R. J. — Dept of Anat., School of Med., Univ. of Washington, SEATTLE 5, Wash., U.S.A.

BLEAKLY, M. C. D.Phil. — Zool. Dept., Univ. of Queensland, George St, BRISBANE, Queensland, Australia
(no embryological work in progress)

BLECHSCHMIDT, E. Dr Med., o.ö. Prof. — Anat. Inst. der Univ., Burgstrasse 51, GÖTTINGEN, Deutschland
- a. Entwicklungsbewegungen der Osteoblasten (Zahndurchbruch). *Homo (Primates)*

BLOUNT, R. F. B.A., M.S., Ph.D., Prof. — Dept of Anat., Med. Branch, Univ. of Texas, GALVESTON, Tex., U.S.A.
- a. Relations of the hypophysis to development. *Ambystoma maculatum (Urodela)*

- b. Experimental hypertension and embryonic transplantation of hypophysis. *Ambystoma maculatum (Urodela)*
- c. Endocrine studies and development, time of beginning function. *Mus musculus* (highly inbred local strain) *(Rodentia)*

BLUMENTHAL, Miss G. H. B.A., M.S. — Dept of Zool., Univ. of Calif., BERKELEY 4, Cal., U.S.A.

BLUNTSCHLI, H. F.I.I.E., Dr. Prof. (Emer.) — Anat. Inst., Bühlstr. 26, BERN, Schweiz
(no embryological work in progress)

BODENSTEIN, D. Ph.D. — Chemical Corps Med. Labs, Army Chemical Center, EDGEWOOD, Md, U.S.A.
- a. Regeneration. *Periplaneta americana (Orthoptera)*
- b. Physiological mechanism of hormone actions; the relations of hormones to fat, protein and carbohydrate metabolism. *Periplaneta americana* and *Drosophila* spec. *(Insecta)*
- c. The role of the prothoracic gland in postembryonic development *Periplaneta americana (Orthoptera)*

BOEKE, J. F.I.I.E., Dr, Prof. (Emer.) — Ramstraat 47, UTRECHT, Holland

BOELL, E. J. Ph.D., M.A., D.Sc. — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.
- a. Changes in mitochondria during development. *(Amphibia)*

BOENDER, J. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
- a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

BOERNER, Mrs D. tit. a.o. Prof. — Inst. für Histol. und Embryol., Universitätsplatz 4, GRAZ, Österreich
- a. Ursachen der ersten Gefässentwicklung in den Organ-anlagenbezirken. *Homo (Primates)*

BON, W. F. M.Sc. — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
- a. Study about the properties of the eye-lens proteins in adults and embryos. *(Amphibia), Gallus (Aves)* (in collaboration with G. ten CATE and others)

BONDI, C. Dott., Prof. — Ist. di Zool. gen., Fac. di Sc. Nat., S. Pietro, PERUGIA, Italia
- a. Rigenerazione. *Planaria lugubris (Turbellaria)*
- b. Ricerche sulla tossicità. *Bufo, Rana, Triton (Amphibia)*

BONIN, W. B.A., M.D., Prof. — Dépt. d'Histol. et d'Embryol., Univ. de Montreal, 2900 Boulevard du Mont-Royal, MONTREAL, Canada
(no embryological work in progress)

BONNER, J. T. Ph.D. — Dept of Biol., Princeton Univ., PRINCETON, N.J., U.S.A.
- a. Problems of morphogenetic movements and differentiation. *Dictyostelium discoideum (Acrasiales)*
- b. Morphogenesis. *(Basidiomycetes)*

BONS, J. Lic. ès Sci. — Lab. de Biol. Anim., Centre d'Etudes Sup. Sci., Avenue Biarnay, RABAT, Maroc
- a. Développement expérimental du rein. *(Reptilia)*

BOOKHOUT, C. G. A.B., M.A., Ph.D., Prof. — Dept of Zool., Duke Univ., DURHAM, N.C., U.S.A.
  a. The development from the egg to the sixty-day stage. Egg deposition, culture methods, day to day observations and records of living larvae and juveniles, study of fixed and sectioned material. *Marphysa regalis (Polychaeta)*

BOREI, H. G. F.M., F.L., F.D. — Lab. of Zool., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
  a. Changes of intermediary metabolism at fertilization of the egg. *Echinarachnius (Echinoderma)*
  b. Role of manganese in intermediary metabolism of eggs before and after fertilization. *Asterias (Echinoderma)*

BORGHESE, E. M.D., Ph.D. — Ist. di Anat. umana normale, Via Forlanini 4, **PAVIA, Italia**
  a. Development of hemopoietic organs and gonads in the lethal homozygous form of the mutation W. *Mus musculus (Rodentia)*

BOSCHWITZ, Miss B. D. M.Sc. — Dept of Zool., Hebrew Univ., JERUSALEM, Israel
  a. The ultimobranchial body. *(Anura)*

BOSE, A. M.Sc. — Dept of Zool., Presidency Coll., College St, CALCUTTA 12, India
  a. Cytochemical studies of the influence of radiation on embryonic cells. *Gallus (Aves)* (in collaboration with S. MOOKERJEE)

BOTERENBROOD, Miss E. C. M.Sc. — Hubrecht Lab., Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland
  a. Organisation of prosencephalic structures after dis- and re-aggregation of the prosencephalic part of the neural plate. *Triturus alpestris, Triturus taeniatus, Ambystoma mexicanum (Urodela)*

BOUILLON, J. Lic.Sci.Zool. — Lab. de Zool., Fac. des Sci., Inst. Zool. Torley-Rousseau, Univ. libre de Bruxelles, 50 Avenue F. D. Roosevelt, **BRUXELLES, Belgique**
  a. Experimental embryology and metamorphosis. *Limnocnida tanganyicae (Hydrozoa)*

BOUIN, P. Dr, Prof. (Emer.) — VENDRESSE, Ardennes, France

BOUMAN, F. Med. Drs — Anat.-Embryol. Lab., Free Univ., Pr. Hendriklaan 27, AMSTERDAM Z, Holland
  a. Electrophoretic studies on the relation of the protein configuration of the serum of the mother and of the developing embryo. *Homo (Primates)* (in collaboration with J. LANGMAN)

BOUNOURE, L. Prof. — Lab. de Biol. gén., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
  a. Initial development: primordial germ-cells, development of the gonads. *(Amphibia)*

BÖVING, B. G. A.B., M.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
  a. Blastocyst spacing, orientation and implantation mechanisms. *Lepus cuniculus (Lagmorpha)*
  b. Relation of trophoblast invasion to bloodvessels underlying uterine epithelium, and the anatomical and chemical basis for it. *Lepus cuniculus (Lagomorpha)*

c. Identification and function of non-cellular blastocyst coverings. *Lepus cuniculus (Lagomorpha)*

BOYD, J. D. M.A., M.Sc., M.D., Prof. — Anat. School, Univ. of Cambridge, CAMBRIDGE, England (U.K.)
a. Organogenesis. *Homo (Primates)*
b. Placental development and structure. *Homo (Primates)*
c. Development and distribution of pigment cells. *Homo (Primates)*

BOYDEN, E. A. Ph.D., Prof. — (Emer. Prof.) Inst. of Anat., School of Med., Univ. of Minnesota, MINNEAPOLIS 14, Minn., U.S.A.
— (Visit. Prof.) Med. School, Univ. of Washington, SEATTLE 5, Wash., U.S.A.
a. The choledochoduodenal junction — a restudy of Oddi's sphincter. *Canis familiaris (Carnivora)*

BOYER, C. C. B.S., M.A., Ph.D., Prof. — Dept of Anat., Schools of Med. and Dent., Univ. of Alabama Med. Center, 620 South 20th St, BIRMINGHAM 5, Alabama, U.S.A.
a. Development of central nervous system. *Cricetus auratus (Rodentia)*
b. Structure of the renal glomerulus. *(Mammalia)*

BRACHET, J. L. A. F.I.I.E., M.D., Prof. — Lab. de Morphol. anim., Univ. libre de Bruxelles, 1850 Chaussée de Wavre, BRUXELLES-Auderghem, Belgique
a. Studies on the metabolism of lethal hybrids. *(Amphibia)*
b. Cytochemical observations on the first developmental stages. *(Amphibia)* (in collaboration with J. J. PASTEELS)
c. Action of ribonuclease on development. *Rana, Ambystoma (Amphibia)*

BRADEN, A. W. H. M.Sc. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
a. Study of the abnormalities of fertilization in various strains. *Mus musculus, Rattus rattus (Rodentia)*
b. Triploidy and tetraploidy in embryos. *Mus musculus, Rattus rattus (Rodentia)*

BRAMBELL, F. W. R. B.A., Ph.D., D.Sc., F.R.S., Prof. — Agr. Res. Council Unit of Embryol., Dept of Zool., Univ. Coll. of North Wales, BANGOR, Caernarvonshire, N. Wales (U.K.)
a. Immunological relations of mother and young. *(Mammalia)*

BRANDT, W. M.D., Ph.D. — Dept of Anat., The Med. School, Birmingham Univ., Edgbaston, BIRMINGHAM 15, England (U.K.)

BRESCH, D. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Association d'organes embryonnaires en culture in vitro. *Gallus (Aves)*

BRETSCHNEIDER, L. H. Prof. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
— Anat.-Embryol. Inst., Vet. Fac., Rijks Univ., Bekkerstraat 141, UTRECHT, Holland
(no embryological work in progress)

BREWIN, B. I. M.Sc. — Dept of Zool., Univ. of Otago, DUNEDIN, New Zealand
a. Embryology and life history of a truly viviparous compound form. *Hypsistozoa fasmeriana (Ascidia)*

BRIEN, P. L. F.I.I.E., Dr Sci.Zool., Prof. — Lab. de Zool., Fac. des Sci., Inst. de Zool. Torley-Rousseau, Univ. libre de Bruxelles, 50 Av. F. D. Roosevelt, BRUXELLES, Belgique

a. Morphologie, embryologie, blastogénèse, gamétogénèse, régénération, transplantation, irradiations par rayons X. *Hydra fusca, Hydra attenuata, Hydra viridis (Hydroidea, Coelenterata), Fredericella sultana, Plumatella fungosa, Lophopus crystallinus, Cristatella mucedo (Bryozoa, Ectoprocta), Pedicellina cernua (Kamptozoa, Endoprocta)*

BRIGGS, R. W. Ph.D. — Lankenau Hospital Research Inst. and Inst. for Cancer Research, Burholme Ave, Fox Chase, PHILADELPHIA 11, Pa, U.S.A.

a. The problem of nuclear differentiation, investigated by means of transplantation of embryonic cell nuclei into enucleated eggs. *Rana (Anura)* (in collaboration with T. J. KING)

BRIONES, H. M.D. — Inst. de Biol. „Juán Noé", Univ. de Chile, Casilla 2988, SANTIAGO, Chile

BRODOWA, Mrs Ch. GRABIE M.Ph. — Zakład Zool. Ogólnej, Inst. Zool., Uniw. we Wrocławiu, ul. Sienkiewicza 21, WROCŁAW, Poland

a. Morphogenetical functions of the thyroid gland, especially hormonal action on blood. *Rana (Anura)*

BROEK, A. J. P. v. d. F.I.I.E., Prof. (Emer.) — Biltstraat 109, UTRECHT, Holland

BROERS, C. J. M.Sc. — Anat.-Embryol. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland

a. The development of the tympanic region and skull. *(Mammalia)*

BRØNDSTED, H. V. F.I.I.E., Dr Phil., Prof. — Inst. for Alm. Zool., Universitetsparken 3, COPENHAGEN Ø, Denmark

a. Regeneration. *(Planariidae, Plathelminthes)*

b. Developmental physiology. *Spongilla (Porifera)*

BROOKBANK, J. W. B.A., M.S., Ph.D. — Dept of Biology, Univ. of Florida, GAINESVILLE, Florida, U.S.A.

a. Urease of developing embryos. *Strongylocentrotus purpuratus.*

b. Effects of antisera on cleavage. *Lytechinus pictus (Echinoidea)*

BROUWER, P. J. M.B. — Anat.-Embryol. Lab. of the Univ., Fac. of Med., Wassenaarseweg, Boerhaavekwartier, LEIDEN, Holland

a. Development of thyroid gland and teeth (investigations with radio-active isotopes) (in collaboration with J. DANKMEIJER)

BROWN, J. W. A.B., M.A., Ph.D. — Dept of Anat., School of Med., Univ. of Pittsburg, PITTSBURGH [illegible] Pa, U.S.A.

a. Development of the nucleus of the spinal tract of trigeminal nerve. *Homo (Primates)*

BRUNOLD, Miss E. Dr Phil. — Zool. Inst. der Eidg. Techn. Hochschule, Universitätsstr. 2, ZÜRICH, Schweiz

a. Die Entwicklung der ♀ Geschlechtsorgane während der Puppenzeit. *Solenobia triquetrella (Lepidoptera).*

BRUNST, V. V. Dr Biol. — Roswell Park Memorial Inst., 663 N-Oak St, BUFFALO 3, N.Y., U.S.A.

a. Experimental developmental morphology. *Siredon mexicanum (Urodela)*

b. Development and pathology. *Siredon mexicanum (Urodela)*

c. Regeneration. *Siredon mexicanum (Urodela)*

BUJARD, E. Prof. — Inst. d'Histol. et d'Embryol., École de Méd., GENÈVE, Suisse
(no embryological work in progress)

BUÑO, W. F.I.I.E., B.S., Ph.D., Prof. — Dept de Histol. y Embriol., Fac. de Med., MONTEVIDEO, Urugay, S. América

BURDON-JONES, C. B.Sc., Ph.D. — Dept of Zool., Univ. Coll. of North Wales, BANGOR, Caernarvonshire, N. Wales (U.K.)
a. Embryology. *(Protochordata* and *Mollusca)*

BURGOS, M. — Dept of Anat., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
a. The cytology, histochemistry and electron microscopy of the granular cells of the metrial gland of the gravid female. *Rattus norvegicus (Rodentia)* (in collaboration with G. B. WISLOCKI, R. ELLIS and L. B. WEISS)

BURNS, R. K. F.I.I.E., A.B., Ph.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
a. The experimental control of sex differentiation in the embryo by means of hormones. *Didelphys virginiana (Marsupialia)*
b. A study of gonad modifications induced by hormones, and the reactions of the gonoducts and urogenital sinus to hormones. *Didelphys virginiana (Marsupialia)*

BUSER—LAHAYE, Mrs J. Dr ès Sci. — Lab. de Biol. Anim., Centre d'Etudes Sup. Sci., Avenue Biarnay, RABAT, Maroc
a. Régénération des nageoirs. *(Teleostei)*
b. Endocrinologie et croissance. *(Teleostei)*

BUTLER, E. G. Ph.D., Sc.D., Prof. — Dept of Biol., Princeton Univ., PRINCETON, N.J., U.S.A.
a. A study of the mechanics of the formation of the regeneration blastema. The influence of nerves on blastema formation. Regression in nerveless non-regenerating limbs. *Ambystoma punctatum* and *Ambystoma opacum (Urodela)*
b. Blastema formation and regeneration in limbs in which proximodistal polarity has been reversed. *Ambystoma punctatum* and *Ambystoma opacum (Urodela)*
c. Regression (reduction) and subsequent reconstitution. *Clavelina lepadiformis (Tunicata, Urochordata)*
d. Effects of ultraviolet radiation on limb development and limb regeneration. *(Urodela)*

BUTLER, H. Prof. — Dept. of Anat., Univ. College of Khartoum, KHARTOUM, Sudan
(no embryological work in progress)

BUTROS, J. M. M.A., Ph.D. — Biol. Dept, American Univ., BEIRUT, Lebanon
a. Effect of nuclear extracts on the cleavage of sea urchin eggs. *Paracentrotus lividus, Arbacia* spec. *(Echinoidea)*

BYCZKOWSKA—SMYK, Mrs W. Mgr. — Zakład Anat. Porównawczej U.J. im H. Hoyera, św. Anny 6, KRAKOW, Poland
a. Proteolitic activity of the yolk sac cell, investigated by tissue culture method. *Gallus (Aves)*

CAIRNS, J. M. A.B., M.S., Ph.D. — Dept of Anat., School of Med., Univ. of Oklahoma, OLKLAHOMA CITY, Okla., U.S.A.

a. The induction of the regional characteristics of feather structure. *Gallus domesticus (Aves)*
b. Differentiation of the wing and leg buds. *Gallus domesticus (Aves)*
CALLAN, H. G. M.A., D.Sc., Prof. — Dept of Zool., The University, ST ANDREWS, Fife, Scotland (U.K.)
CAMBAR, R. Dr., Prof. — Lab. de Biol. gén., Fac. des Sci. de Bordeaux, 40 Rue Lamartine, TALENCE, Gironde, France
a. Etude descriptive et expérimentale de la morphogénèse du mésonephros. *Rana, Alytes, Xenopus (Anura)*
b. Etude du développement du système pronéphrétique, en particulier de l'uretère primaire. *Rana, Alytes, Bufo, Xenopus (Anura)*
c. Table chronologique du développement normal. *Bufo, Alytes (Anura)*
CAMPENHOUT, E. van F.I.I.E., Dr, Prof. — Inst. d'Anat., Univ. de Louvain, 38 Rue des Récollets, LOUVAIN, Belgique
a. Innervation of the lungs.
b. Innervation of the digestive tract.
c. Development of the embryo. *Crocodilus (Reptilia)*
CARRANO, Miss F. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
a. The action of some chemical substances on the development. *(Annelida)*
CARTER, T. C. M.A., Ph.D., D.Sc. — Radiobiol. Res. Unit., Atomic Energy Res. Establ., HARWELL, Berkshire, England (U.K.)
a. Developmental study of a radial hemimelia mutant. *Mus musculus (Rodentia)*
b. Developmental study of the myelencephalic blebs mutant. *Mus musculus (Rodentia)*
CASPARI, E. W. Ph.D., Prof. — Dept of Biol., Wesleyan Univ., MIDDLETOWN, Conn., U.S.A.
a. Mitochondria in development and heredity. *Mus musculus (Rodentia)*
b. Development of pigment granules in the testis. *Ephestia Kühniella (Lepidoptera)*
c. Development of a blind mutant. *Mus musculus (Rodentia)*
CASTIGLIONI, Miss M. C. Dr — Ist. di Genet., Univ. di Milano, Via Celoria 10, MILANO, Italia
a. Experimental study of development of pseudotumors. *Drosophila (Diptera)*
b. Transplantation of eye discs between stocks with developmental abnormalities of the eye. *Drosophila (Diptera)*
c. Paper chromatography of mutants. *Drosophila (Diptera)*
CASTIGLI—PITOTTI, Mrs M. Dott. — Ist. di Biol. gen., Fac. di Med., S. Pietro, PERUGIA, Italia
a. Natura della gastrulazione senza segmentazione. *Petromyzon fluviatilis (Cyclostomata)*
b. Azione e reazione nella metamorfosi. *Bufo vulgaris (Anura)*
c. Morfogenesi proteica.
CASTRO, F. De F.I.I.E., Dr, Prof. — Instituto Cajal, MADRID, Spain
CATE, G. ten M.D. — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
a. Study about the origin of the specific lens protein α-crystallin in development. *(Amphibia), Gallus (Aves)* (in collaboration with W. F. BON and others)

CATES, C. H. A.B. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
  a. Comparative cell counts of cervical spinal ganglia and ventral horn on the normal side with the opposite where the anterior extremity failed to develop. *Ovis aries (Artiodactyla)*

CEI, J. M. Dr Biol.Sc. — Inst. de Zool., Univ. Nac. de Tucumán, Miguel Lillo 205, TUCUMAN, Argentina, S. America

CELESTINO da COSTA, A. F.I.I.E., Dr hon. causa: Bordeaux 1923, Toulouse 1929, Prof. — Inst. de Histol. e Embriol., Fac. de Méd., LISBOA, Portugal

CENTAMORI, M. Dott. — Ist. di Biol. gen., Fac. di Med., S. Pietro, PERUGIA, Italia

CHALKLEY, D. T. B.A., M.A., Ph.D. — Univ. of Notre Dame, NOTRE DAME, Ind., U.S.A.
  a. Factors affecting growth of de-epidermalized 20-25 day regenerates in plasma-embryo extract media. Effects of temperature, tissue extracts, tissue extract fractions, co-enzymes, anti-lytic factors, carcinogens. *Triturus viridescens (Urodela)*
  b. Response of regenerating amphibian limbs to injections of carcinogens, methylcolanthrene, dibenzanthracene. *Triturus viridescens (Urodela)*

CHAMBERS, W. W. — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
  a. Intraspinal sprouting elicited from intact spinal sensory neurons by adjacent posterior root section (in collaboration with C. N. LIU)

CHANDEBOIS, Miss R. Lic. ès Sci. — Lab. de Zool. génér. de la Fac. des Sci., Place Victor Hugo, MARSEILLE, France

CHANG, C. Y. M.S., Ph. D. — Dept of Zool., State Univ. of Iowa, IOWA CITY, Iowa, U.S.A.
  a. Sex determination by steroid hormones. *(Anura)*
  b. Parabiosis and sex differentiation. *Xenopus (Anura)*
  c. Inheritance of polymely. *Bufo (Anura)*
  d. Sex inheritance and differentiation. *(Ranidae)*

CHANG, M. C. Ph.D. — Worcester Foundation for Exper. Biol., 222 Maple Ave, SHREWSBURY, Mass., U.S.A.
  a. Physiology of fertilization and cleavage. *Oryctolagus cuniculus (Lagomorpha)*
  b. Fertilizability. *Oryctolagus cuniculus (Lagomorpha)*
  c. Parthenogenetic development of blastocysts. *Oryctolagus cuniculus (Lagomorpha)*
  d. Effects of low temperatures on heart beat of 10 day old embryos. *Oryctolagus cuniculus (Lagomorpha)*

CHANG, T. K. Dr — Chinese Peking Union Med. College, PEKING, China

CHANMUGAM, P. K. M.Sc., M.R.C.S., L.R.C.P., L.M.S. — Dept of Anat., Fac. of Med., Univ. of Ceylon, Kynsey Rd, COLOMBO 8, Ceylon, India
  a. Studies on the ova. *Hemichromis bimaculatus (Pisces)*

CHAPMAN, A. O. Ph.D. — Dept of Anat., Coll. of Med., Univ. of Nebraska, OMAHA 5, Nebraska, U.S.A.
  a. Effects of radiation on developing embryos. *Gallus (Aves)* (in collaboration with E. A. HOLYOKE and J. S. LATTA)

b. Experimental study of development of gonads. *Mus (Rodentia)* (in collaboration with E. A. HOLYOKE and J. S. LATTA)

CHASE, H. B. Ph. D., Prof. — Arnold Biol. Lab., Brown Univ., PROVIDENCE 12, R.I., U.S.A.

a. A study of anophthalmia and microphthalmia. *Mus musculus (Rodentia)*

b. A study of skin and its derivatives with emphasis on hair development and pigment distribution. *Mus musculus (Rodentia)*

CHEN, J. M. — Strangeways Research Lab., Wort's Causeway, CAMBRIDGE, England (U.K.)

CHEN, P. S. Dr Phil. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz

a. Organogenesis in chimaera. *(Amphibia)* (in collaboration with F. BALTZER, Bern)

b. Nucleic acids and animo acids in hybrid development. *(Amphibia)*

c. Developmental physiology and biochemistry. *Drosophila* spec. *(Diptera)*

CHENEY, R. H. B.S., A.M., S.M., Sc.D., Prof. — Dept of Biol., Brooklyn Coll., Bedford Ave and Ave H, BROOKLYN 10, N.Y., U.S.A.

a. Retardation effect of dimethylated xanthines on development. *Arbacia punctulata (Echinoidea)*

b. Theophylline, theobromine, and caffeine effects on fecundity and development. *Rattus norvegicus (Rodentia)*

c. Effect of di- and trimethylated xanthines on root tip growth. *Allium (Liliaceae)*

d. Effect of methylated xanthines on the oxygen consumption of the fertilized egg and early embryology. *Arbacia punctulata (Echinoida)*

e. Effect of x-ray radiation on development of methylated xanthine-treated eggs. *Arbacia punctulata (Echinoidea)*

CHIRIBOGA, J. M.D. — Central de Investig., Minist. de Salud Públ. de la Nacíon, Bolivar 1128, BUENOS AIRES, Argentina

CHIQUOINE, A. D. B.A., Ph.D. — Dept of Biol., Princeton Univ., PRINCETON, N.J., U.S.A.

a. Histochemical studies of the developing embryo. *Mus musculus albinus (Rodentia)*

CHISHIMA, K. Prof. — Lab. for Zool., Dept of Agr., Gifu Univ., Nakacho, GIFU, Gifu-ken, Japan

a. New cell (spermatogonia)-formation from living substances (fatty tissue). *Bombyx mori* L. and *Pachytilus danicus* L. *(Insecta)*

b. New cell (hemocytoblast)-formation from yolk spheres in embryo and tadpole. *Rana nigromaculata* Hall *(Anura)*

CHUANG HSIAO HUI, F.I.I.E., Dr rer. nat., Dr rer. nat. habil. — Lab. of Developm. Physiol., Inst. for Exper. Biol., Acad. Sinica, 865 Chang Ning Rd, SHANGHAI, China

CHURCH, G. A.B. — Dept of Biol. Sci., Stanford Univ., STANFORD, Cal., U.S.A.

CIGADA—LEONARDI, Mrs M. Dott. Sci. Biol. — Ist. di Zool. e Anat. Comp., Univ. di Milano, Via Celoria 10, MILANO, Italia

a. Protein changes in embryonic development. *(Insecta, Echinodermata, Amphibia* and *Aves)*

b. Fluorescent substances. *(Amphibia)*

CITTERIO, P. Grad.stud. — Ist. di Zool. e Anat. Comp., Univ. di Milan Via Celoria 10, MILANO, Italia

a. Determination in early development. *(Echinodermata* and *Amphibia)*

CLARA, M. Dr, Prof. — Inst. of Histol. and Embryol., Univ. of Istanbul, ISTANBUL-Beyazit, Turkey
(no embryological work in progress)

CLARK, E. R. A.B., M.D., Sc.D., Prof. (Emer.) — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.

CLARK, H. B.A., Ph.D., Prof. — Dept. of Zool., Univ. of Connecticut, STORRS, Conn., U.S.A.
a. Nitrogen metabolism of embryos. *(Reptilia* and *Aves)*
b. Factors affecting reaggregation of segregated cells in tissue culture. (in collaboration with J. E. SHANNON)
c. Nitrogen metabolism of synovial tissue. *Homo (Primates)*
d. Phase contrast cinematography of synovial tissue. *Homo (Primates)*
e. Ontogenesis of enzymes. *Rana pipiens (Anura), Gallus domesticus (Aves)* (in collaboration with M. GOLDIE)

CLARKE FRASER, F. M.D. — Dept of Genetics, McGill Univ., MONTREAL, Quebec, Canada
a. The experimental production of congenital defects, chiefly by maternal treatment with cortisone. *Mus musculus (Rodentia)*
b. The effect of puncturing the amnion around the time of palate closure, in relation to congenital cleft palate. *Mus musculus (Rodentia)*

CLAVERT, J. Dr en Méd., Dr ès Sci., Prof. — Inst. d'Embryol., Fac. de Méd., 1 Place de l'Hôpital, STRASBOURG, France
a. Formation de l'oeuf (Rôle de l'hormone fémelle en vitellogénèse). *Columba, Anas* and *Gallus (Aves)*
b. Recherches sur le déterminisme de la symétrie bilaterale. *(Aves)*

CLAYTON—FREEDMAN, Mrs R. M. M.A. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
a. Studies of differentiation by immunological and other techniques. *Triton alpestris (Urodela)*
b. Studies of a locus in a highly inbred line by immunological and allied techniques: the loci pink eye, luxate, and agouti in CBA mice and albino in an inbred strain of this laboratory. *Mus musculus (Rodentia)*
c. Differentiation in tissue culture. *Gallus (Aves)* (in collaboration with M. FELDMAN and Mrs H. B. OLIVER—YATES)
d. Studies of differentiation by immunological and chromatographic techniques. *Mus musculus (Rodentia)*

CLEAT, N. D. B.Sc. — Dept of Genet., The University, GLASGOW W. 2, Scotland (U.K.)

CLEGG, E. J. M. B., Ch. B. — Dept of Anat., Univ. of Liverpool, LIVERPOOL, England (U.K.)
a. The importance of the vascularization of the prostate and seminal vesicles for the viability of spermatozoa. *(Mammalia)*

CLELAND, K. W. M. B., B.S. — Dept of Histol. and Embryol., Univ. of Sydney, SYDNEY, N.S.W., Australia
(no embryological work in progress)

CLEMENT, A. C. Ph.D., Prof. — Dept of Biol., Emory Univ., ATLANTA, Ga, U.S.A.

a. Localization of morphogenic factors: experimental analysis. *Ilyanassa obsoleta (Gastropoda)*

CLEMENTS, L. P. Dr — Dept of Anat., School of Med., The Creighton Univ., OMAHA, Nebraska, U.S.A.

a. The significance and fate of embryonic mesenchyme in the middle ear. Morphologic study of ears from 1-21 days. *Rattus norvegicus* (Holtzmann strain) *(Rodentia)* (in collaboration with P. GUGGENHEIM and A. SCHLESINGER)

b. Freeze-drying studies with refined cytologic study and investigation of changes in ground substance of mesenchyme. *Rattus norvegicus* (Holtzmann strain) *(Rodentia)* (in collaboration with P. GUGGENHEIM and A. SCHLESINGER)

c. Fate of the mesenchyme in the middle ear in dwarf animals and their „normal" heterozygous littermates. *Rattus (Rodentia)* (in collaboration with P. GUGGENHEIM and A. SCHLESINGER)

COHEN, A. I. Ph.D. — Dept of Anat., Med. School, Washington Univ., ST LOUIS 10, Mo., U.S.A.

a. Reduced and oxidized DPN levels in the early embryo. *Rana pipiens (Anura)*

COHN, S. A. B.S., M.S., Ph.D. — Div. of Anat., Med. Units Div., Fac. of Biol. Sci., Univ. of Tennessee, MEMPHIS 3, Tenn., U.S.A.

a. The development of glands of ectodermal origin. *Gallus domesticus (Aves), Mus musculus (Rodentia)*

b. Cytological, cytochemical and histochemical studies on the initiation of secretory activity in developing ectodermal glands. *Mus musculus (Rodentia)*

c. Histochemical studies on the effects of viruses on developing embryos. *Gallus domesticus (Aves)*

COLOMBO, G. Dr Biol.Sci. — Ist. di Zool. e Anat. comp., Fac. di Sci., Via Loredan 10, PADOVA, Italia

a. Chromosomes in early development. *(Amphibia)*

b. Effects of hormones on cleavage and early development. *(Amphibia)*

e. Gametogenesis. *(Arthropoda)*

COLWIN, A. L. Ph.D., Prof. — Dept of Biol., Queens Coll., Flushing 67, L.I., NEW YORK, N.Y., U.S.A.

a. Fertilization studies. *Saccoglossus (Enteropneusta), (Echinodermata)* (in collaboration with Mrs L. H. COLWIN)

b. Normal and experimental development. *Saccoglossus (Enteropneusta)* (in collaboration with Mrs L. H. COLWIN)

COLWIN, Mrs L. HUNTER Ph.D., Prof. — Dept of Biol., Queens Coll., Flushing 67, L.I., NEW YORK, N.Y., U.S.A.

a. Fertilization studies. *Saccoglossus (Enteropneusta), (Echinodermata)* (in collaboration with A. L. COLWIN)

b. Normal and experimental development. *Saccoglossus (Enteropneusta)* (in collaboration with A. L. COLWIN)

CONAWAY, C. H. B.S., Ph.D., — Dept of Zool., Univ. of Missouri, COLUMBIA, Mo., U.S.A.

a. Development and morphology of the ovary. *(Talpidae, Insectivora)*

CONINCK, L. A. P. De Dr Sc., Prof. — Lab. voor Zool., Afd. Morphol., Universiteitstraat 14, GENT, België

COPENHAVER, W. M. Dr, Prof. — Dept of Anat., Coll. of Physicians and Surgeons, Columbia Univ., 630 West 168th St, NEW YORK 32, N.Y., U.S.A.

CORDIER, J. Dr, Prof. — Lab. d'Histol., Fac. de Méd. de l'Univ., 97 Rue aux Laines, BRUXELLES, Belgique
(no embryological work in progress)

CORLISS, C. E. B.S., M.S., Ph.D. — Div. of Anat., Med. Units Div., Fac. of Biol. Sci., Univ. of Tennessee, MEMPHIS 3, Tenn., U.S.A.
- a. Study of mitotic activity and its relation to morphogenesis in young embryos. *Mus norvegicus albinus (Rodentia)*
- b. Colchicine toxicity to embryonic tissue. *Mus norvegicus albinus (Rodentia)*

CORNER, G. W. F.I.I.E., A.B., M.D., D.Sc., Prof. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
— Rockefeller Inst. for Med. Res., 66th St and York Ave, NEW YORK 21, N.Y., U.S.A.
- a. Histology of uterus and ovaries in reproductive cycle. Chiefly *Macacus rhesus (Primates)*
- b. Physiology of uterine muscle. *(Mammalia)*
- c. Uterine innervation. *Oryctolagus cuniculus* and other laboratory animals *(Mammalia)*

COSTELLO, D. P. F.I.I.E., Ph.D., Prof. — Dept of Zool., Univ. of North Carolina, CHAPEL HILL, N.C., U.S.A.
- a. Effects of radio-isotopes on mitosis. *Ambystoma maculatum (Urodela)* and *Chaetopterus pergamentaceus (Annelida)* (in collaboration with Miss C. HENLEY and D. E. KENT)

COTRONEI, G. F.I.I.E., Dott., Prof. — Ist. di Anat. comp. dell'Univ., Fac. di Sci., Via Borelli 50, ROMA, Italia
- a. Risultati sperimentali e problemi sui trapianti, espianti, parabiosi xenoplastiche. *(Amphibia)*

COULOMBRE, A. J. B.S., M.S., Ph.D. — Dept of Anat., Yale Univ. School of Medicine, 333 Cedar Street, NEW HAVEN 11, Conn., U.S.A.
- a. Role of intraocular pressure in the growth and development of the eye. *Gallus domesticus (Aves)*
- b. Histochemical and electron microscopic study of the embryonic intestine. *Gallus domesticus (Aves)*

COUNCE, Miss S. J. M.A., Ph.D. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
- a. Effect of ultra-sonic treatment on embryonic development. *Drosophila (Diptera)* (in collaboration with G. G. SELMAN)
- b. Egg development in the ovaries of female steriles. *Drosophila (Diptera)*
- c. Effect of the "Tortoise-shell" gene on embryonic development *Mus musculus (Rodentia)*

COURRIER, R. Prof. — Lab. de Morphol. expér. et Endocrinol., Coll. de France, Place Marcelin Berthelot, PARIS Ve, France
- a. Retard de la nidation et du développement foetal en hypothermie. *Rattus (Rodentia)*

CRELIN, E. S. Ph.D. — Anat. Dept, School of Med., Yale Univ., NEW HAVEN 11, Conn., U.S.A.

CRESP, J. Lic.èsSci. — Lab. de Zool. génér. de la Fac. des Sci., Place Victor Hugo, MARSEILLE, France

CRISP, D. J. M.A., Ph.D. — Marine Biol. Stat., Univ. Coll. of North Wales, BANGOR, N. Wales (U.K.)
  a. Rate of development of egg masses in vitro. *Balanus* spec., *Chthamalus stellatus (Cirripedia)*

CROISILLE, Y. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
  a. Culture de foie embryonnaire sur des milieux à base de divers extraits d'organes.

CROWDER, R. E. M.D. — U.S. Naval Hospital, CAMP LEJEUNE, N.C., U.S.A.
  a. Sources of cellular contributions to the adrenal anlage. *Homo (Primates)*

CROWELL, P. S. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.
  a. Experimental analysis of morphogenesis. *Campanularia (Cordylophora, Hydractinia)*

CSAPO, A. I. M.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
  a. Physiology of uterine muscle, including developmental physiology. *Sus scrofa* and *Lepus cuniculus (Mammalia)*
  b. Biochemistry of the myometrium. *(Mammalia)*
  c. Energetics of the myometrium. *(Mammalia)*
  d. The mechanism of estrogen and progesterone effect. *(Mammalia)*
  e. Technical considerations concerning uterine pharmacology. *(Mammalia)*
  f. The maintenance of pregnancy and its disorders. *(Mammalia)*

DAINTY, J. M.A. — Biophysics Unit, Univ. of Edinburgh, King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
  a. Physical aspects of growth and development.

DALCQ, A. M. F.I.I.E., M.D., Prof. — Lab. d'Anat. et d'Embryol., Fac. de Méd. de l'Univ., 97 Rue aux Laines, BRUXELLES, Belgique
  a. Cytochemistry of early stages of development. *(Rodentia* and *Insectivora)* (in collaboration with coworkers)
  b. Cytochemistry of various buds (limbs, tail, genitalia).

DALTON, H. C. Ph.D. — Dept of Zool., New York Univ., NEW YORK, N.Y., U.S.A.
  a. Gene action controlling development of pigmentation in white and dark strains. *Ambystoma mexicanum (Urodela)*
  b. Control of melanophore development by skin tissues. *Ambystoma mexicanum (Urodela)*

DAMAS, H. F. C. Dr Sc., Agr. Zool., Prof. — Inst. de Zool. Ed. Van Beneden, Dépt Morphol. des Chordés, Fac. des Sci., 22 Quai Ed. Van Beneden, LIÈGE, Belgique
  a. Etude descriptive et comparative du développement. *Petromyzon marinus, Lampetra fluviatilis* et *L. planeri (Cyclostomata)*

DAN, Mrs J. C. Ph.D. — Embryol. Section, Dept of Biol., Tokyo Metropolitan Univ., Setagaya-ku, TOKYO, Japan
  a. Electron-microscope observation of spermatozoa under various experimental conditions. *(Echinodermata, Mollusca* and *Annelida)*

b. Study of egg-membrane lysin of spermatozoa. *(Mollusca)*

DAN, K. Ph.D., Prof. — Embryol. Section, Dept of Biol., Fac. of Sci., Tokyo Metropolitan Univ., Setagaya-ku, TOKYO, Japan

a. Exogastrulation without change in determination. *(Echinoidea)*
b. Mitotic spindle isolation and analysis. *(Echinoidea)*
c. Formation of mitotic apparatus and SH-proteins. *(Echinoidea)*
d. Mechanism of polar body formation. *(Mollusca)*

D'ANCONA, U. Dr Nat. Sci., Prof. — Ist. di Zool. e Anat. comp., Fac. di Sci., Via Loredan 10, PADOVA, Italia

a. Differentiation of the gonad. *(Vertebrata,* esp. *Pisces)*
b. Embryology. *(Teleostei, Ganoidea* and *Amphibia)*

DANKMEIJER, J. Med. Dr, Prof. — Anat.-Embryol. Lab. of the Univ. of Leyden, Fac. of Med., Wassenaarseweg, Boerhaavekwartier, LEIDEN, Holland

a. Normal and abnormal development of the heart. *Homo* and other *Animalia* (in collaboration with J. A. LOS)
b. Development of thyroid gland and teeth (investigations with radio-active isotopes) (in collaboration with P. J. BROUWER)
c. Development of uterus. *Homo (Primates)*
d. Heart and vessels in congenital malformations. *Homo (Primates)* (in collaboration with H. A. SNELLEN, Miss A. DEKKER and Miss H. C. v. INGEN)

DAVIES, D. H. M.Sc. — Division of Fisheries, Beach Road, Sea Point, CAPE TOWN, South Africa

a. Embryology. *Sardinops ocellata* (Pappe) *(Isospondyli, Neopterygii)*

DAVIES, F. M.D., D.Sc., Prof. — Dept of Anat., Fac. of Med., Univ. of Sheffield, SHEFFIELD, England (U.K.)

a. Histological studies of conducting system of the heart. *(Mammalia)* (in collaboration with E. T. B. FRANCIS, Dept of Zool.)

DAWSON, A. B. Prof. — Biol. Lab., Harvard Univ., Divinity Ave, CAMBRIDGE 38, Mass., U.S.A.

DE CESARE, Miss. I. Dr Nat.Sci. — Ist. die Anat. Comp., Via Belmeloro 8, BOLOGNA (103), Italia

a. Action of antimitotics on early development. *(Amphibia)* (in collaboration with P. PASQUINI)

DECK, J. D. B.S., Ph.D. — Dept of Anat., School of Med., Univ. of Virginia, CHARLOTTESVILLE, Va., U.S.A.

a. Study of innervation of larval forelimbs which have regenerated after transplantation with reversed proximo-distal polarity. *Ambystoma punctatum (Urodela)*
b. Study of relationship between innervation and regeneration of larval limbs with reversed proximo-distal polarity. *Ambystoma punctatum (Urodela)*

DEKKER, Miss A. Physician — Anat.-Embryol. Lab. of the Univ., Fac. of Med., Wassenaarseweg, Boerhaavekwartier, LEIDEN, Holland

a. Heart and vessels in congenital malformations. *Homo (Primates)* (in collaboration with J. DANKMEIJER, H. A. SNELLEN and Miss H. C. v. INGEN)

DELMAS, A. Prof. — Lab. des Traveaux Anat., Fac. de Méd. Nouvelle, 45 Rue des Sts Pères, PARIS VIe, France

a. Développement de l'encéphale. *Homo (Primates)*
b. Développement anormal de l'encéphale et des organes des sens. *Mus rattus (Rodentia)*

DEMPSEY, E. W. — Dept of Anat., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
a. Studies of the placenta. Histochemistry. *Equus caballus (Perissodactyla)* (in collaboration with G. B. WISLOCKI and E. C. AMOROSO)
b. The placenta studied by means of the electron microscope. *Felis domestica (Carnivora)* (in collaboration with G. B. WISLOCKI)

DENT, J. N. A.B., Ph.D., Assoc. Prof. — Dept of Biol., Univ. of Virginia, CHARLOTTESVILLE, Va, U.S.A.
a. Uptake of certain radioisotopes by various embryonic regions. *Rana pipiens (Anura)*
b. Further studies on regeneration. *Triturus viridescens (Urodela)*

DEROUX, G. Lic. ès Sci. — Station Biologique, ROSCOFF, Finistère, France

DETH, J. H. M. G. van M.D. — Anat.-Embryol. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Fetal endocrinology. *(Aves, Mammalia)*

DETWILER, S. R. Dr, Prof. — Dept of Anat., Coll. of Physicians and Surgeons, Columbia Univ., 630 West 168th St, NEW YORK 32, N.Y., U.S.A.

DEUCHAR, Miss E. M. M.A., Ph.D. — Dept of Embryol., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
a. Studies on the free amino acids in embryonic and larval tissues. *Xenopus laevis, Discoglossus pictus, Ambystoma tigrinum (Amphibia)*
b. Amino acid metabolism in abnormal embryos produced by various treatments. *Xenopus laevis, Ambystoma tigrinum, Triturus helveticus (Amphibia)*
c. Effects of chloroacetophenone on development. *Xenopus laevis (Anura)*

DEVILLERS, Ch. Dr ès Sci. — Lab. d'Anat. et d'Histol. comp., Fac. des Sci., 1 Rue Victor Cousin, PARIS Ve, France
a. Origine de l'énergie utilisée au cours du développement de l'oeuf. *Salmo fario* and *Salmo irideus (Teleostei)*

DIDINGS, S. Fil. Lic. — Embryol. Dept, Zool. Inst. of the Univ. of Lund, LUND, Sweden

DIJK, D. E. van B.Sc. — Zool. Inst., Univ. of Stellenbosch, STELLENBOSCH, South Africa
a. Ontogenesis of the cloaca. *(Anura)*

DINGLER—HAHL, Mrs E. Ch. Dr Med. — Anat. Inst. der Univ. München, Pettenkoferstr. 11, MÜNCHEN 15, Deutschland
a. Das postnatale Wachstum der Lunge. *Felis domestica (Carnivora)*

DODD, J. M. B.Sc., Ph.D. — Gatty Marine Lab., ST ANDREWS, Fife, Scotland (U.K.)

DOHRN, P. M.D., Ph.D. — Stazione Zool., NAPOLI, Italia

DOHRN, R. Dr, Prof. — Stazione Zool., NAPOLI, Italia

DOKTER, H. J. Med.Drs — Anat.-Embryol. Lab., Free Univ., Pr. Hendriklaan 27, AMSTERDAM Z, Holland
a. Study of abnormal development by injecting methyl-thiouracil into eggs. *Gallus domesticus (Aves)* (in collaboration with J. LANGMAN)

b. Study of influence of anti-thyroid drugs on morphogenesis. *Rattus norvegicus albinus (Rodentia)*

DOLLANDER, A. Dr, Agrégé — Lab. d'Histol., Dépt. d'Embryol., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

DONALDSON, J. C. Ph.B., M.D., Prof. — Dept of Anat., School of Med., Univ. of Pittsburgh, PITTSBURGH 13, Pa, U.S.A.

a. Studies on the developing pancreas. *Homo (Primates)*

DOORENMAALEN, W. J. van Med. Drs — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland

a. Role of the production of lensproteins in lensregeneration. *(Amphibia)*

DOSSEL, W. E. A.B., M.S., Ph.D. — Dept of Anat., School of Med., Univ. of North Carolina, CHAPEL HILL, N.C., U.S.A.

a. Early thyrotrophic activity in the embryo. *Gallus domesticus* (various varieties) *(Aves)*

b. Regulation of size and functional activity of heterotopic, homoioplastic transplants of the thyroid. *Gallus domesticus* (various varieties) *(Aves)*

c. Locus of origin of parathyroid tissue. *Gallus domesticus* (various varieties) *(Aves)*

DRAGOMIROV, N. I. Prof. — Inst. of Animal Morphol. of the Acad. of Sci. of the U.S.S.R., B. Kalužskaja 33, MOSKOU, Russia

DREYER, Miss M. V. B.Sc. — Dept of Zool., Univ. of O.F.S., BLOEMFONTEIN, South Africa

a. The epithelio-neural bodies. *Gallus bankiva (Aves)*

DUFFEY, L. M. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.

a. Physiology of development of the heart of the early embryo. *Gallus gallus (Aves)*

DURANTE, Miss M. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia

a. Xenoplastic gill transplantations. *(Amphibia)*

b. Xenoplastic limb transplantations. *(Amphibia)*

DUSHANE, G. Ph. D., Prof. — Dept of Biol., Stanford Univ., PALO ALTO, Cal., U.S.A.

a. Pigmentary relations in transplantations between white and black animals. *Ambystoma mexicanum (Urodela)*

EAKIN, R. M. F.I.I.E., A.B., Ph.D., Prof. — Dept of Zool., Univ. of California, BERKELY 4, Cal., U.S.A.

a. Development of the pituitary. Study of independent or dependent differentiation of the partes buccales and pars nervosa of the pituitary. *Hyla regilla (Anura)*

EALES, Miss N. B. D.Sc. (London) — Univ. Dept of Zool., READING Berkshire, England (U.K.)

EAYRS, J. T. B.Sc., Ph.D. — Dept of Anat., The Med. School, Birmingham Univ., Edgbaston, BIRMINGHAM 15, England (U.K.)

a. Effects of hormones on central nervous development. *(Rodentia)*

EBERT, J. D. Ph.D. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.

— Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.

a. Biochemical and immunochemical analysis of the synthesis and distribution of the contractile proteins, actin and myosin, in the development of the heart in the early embryo. *Gallus gallus (Aves)* (in collaboration with R. F. RUTH)
b. Immunological studies of melanogenesis; immunochemical properties of the melanins, melanoproteins. The chemistry of the pigment-forming area in the early embryo. *Gallus gallus (Aves)*
c. Analysis of the effects of adult or late embryonic tissue transplants on homologous tissues of the host embryo. *Gallus gallus (Aves)*
   1. Effects on synthesis of desoxyribosenucleic acid and proteins. (in collaboration with B. H. JOHNSON)
   2. Selective transfer of radioactivity from grafts to homologous host tissues. (in collaboration with A. M. MUN)
d. Amino acid and peptide metabolism of the early embryo. *Gallus gallus (Aves)* (in collaboration with M. A. DAWSON)

EDDS, Jr., M. V. B.A., M.A., Ph.D. — Arnold Biol. Lab., Brown Univ., PROVIDENCE 12, R.I., U.S.A.
a. Study of factors influencing the collateral regeneration of intact axons in partially denervated muscles. *Mus norvegicus albinus (Rodentia)*
b. Study of factors influencing the diameter of nerve fibers. *Mus norvegicus albinus (Rodentia)*

EDE, D. A. B.Sc., M.S., Ph.D. — Dept of Zool., Univ. of Edinburgh, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
a. Study of the developmental effects of embryonic lethal mutations. *Drosophila melanogaster (Diptera)*
b. Experimental study of normal embryology. *Drosophila melanogaster (Diptera)*

EDWARDS, L. F. B.S., M.Sc., Ph.D., Prof. — Dept of Anat., Ohio State Univ., COLUMBUS 10, Ohio, U.S.A.

EDWARDS, R. G. B.Sc.Agric., B.Sc.Zool., Dip. Genet. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
a. Heteroploidy and parthenogenesis, operations on embryos. *Mus musculus (Rodentia)* and *Oryctolagus cuniculus (Lagomorpha)*
b. Relations between sperms and eggs at fertilization. *Mus musculus (Rotentia)*
c. Investigation of early embryonic development using radioactive tracers. *Mus musculus (Rodentia)* (in collaboration with J. L. SIRLIN)

EEDEN, J. A. van M.Sc., D.Sc. — Dept of Zool., Potchefstroom Univ., POTCHEFSTROOM, South Africa
(no embryological work in progress)

ELBERS, P. F. M.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Electron microscopical investigation on growth and differentiation of the egg. *Limnaea stagnalis (Gastropoda)*

ELLIS, R. — Dept of Anat., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
a. The cytology, histochemistry and electron microscopy of the granular cells of the metrial gland of the gravid female. *Rattus norvegicus (Rodentia)* (in collaboration with L. B. WEISS, M. BURGOS and G. B. WISLOCKI)

ELOFF, F. C. D.Sc., Prof. — Zool. Inst., Fac. of Sci., Univ. of Pretoria, South Africa

ELSDALE, T. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

a. Organ-specific transfer in embryos. *(Amphibia)* (in collaboration with J. L. SIRLIN)

EL SHATOURY, H. H. B.Sc., Ph.D. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURG 9, Scotland (U.K.)

a. Survey of pupal lethals. *Drosophila (Diptera)*
b. Post-embryonic development and behaviour of the blood-forming organs. *Drosophila melanogaster (Diptera)*
c. Application of immune reactions to determine invisible changes in non-metamorphic structures. *Drosophila melanogaster (Diptera)*
d. Gastric tumours and their relation to hormonal disturbances. *Drosophila melanogaster (Diptera)*
e. Imaginal induction. *Drosophila melanogaster (Diptera)*
f. Metamorphosis. *Drosophila melanogaster (Diptera)*

EMANUELSSON, H. Fil.Lic. — Zoophysiol. Inst., Univ. of Lund, LUND, Sweden

a. Nucleic acid gradients in the developing embryo. *Gallus domesticus (Aves)*
b. DNA-synthesis in the developing embryo. *Gallus domesticus (Aves)*

ENDO, Y. M.Sc. — Biol. Lab., Keio Univ., Hiyoshi, Kohoku, YOKOHAMA, Japan

a. A chemical study of the processes of fertilization membrane formation. *(Echinoidea)*
b. Electron microscopical study of the fertilization membrane. *(Echinoidea)*

ENGELBRECHT, D. van Z. M.Sc. — Zool. Inst., Univ. of Stellenbosch, STELLENBOSCH, South Africa

a. Cranial ontogenesis. *Pyromelana* spec. *(Aves)*

ENGELMANN, F. Cand. Phil. — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz

a. Untersuchungen der hormonalen Steuerung der Häutungen. *Leucophaea Maderae (Orthoptera)*

ENGLÄNDER, H. Dr Med., Dr rer. nat. — Zool. Inst. der Univ. Köln, Kerpenerstr. 13, KÖLN-LINDENTHAL, Deutschland

a. Regionalspezifische Induktion. *(Urodela)*

ERENÇIN, Z. Med. Veter. Dr., Prof. — Inst. of Histol. and Embryol., Veter. Coll. of the Univ., ANKARA, Turkey
(no embryological work in progress)

ESTABLE, Cl. F.I.I.E., Dr, Prof. — Inst. de Investigacion de Ciencias Biologicas, Avenue Italia 3318, MONTEVIDEO, Uruguay

EVANS, D. R. B.S., M.S. — Dept of Biol., The Johns Hopkins Univ., Charles and 34th Sts, BALTIMORE 18, Md, U.S.A.

a. The development of erupt eye and melanotic tumors. *Drosophila melanogaster (Diptera)*

EVANS, H. J. Ph.D. — Dept of Zool., Syracuse Univ., SYRACUSE 10, N.Y., U.S.A.

a. Action of cortisone on the developing embryo. *Gallus domesticus, Rattus rattus (Amniota)*

EVOLA—MALTESE, Mrs C. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
- a. The action of xenoplastic embryo extracts on the larvae. *(Amphibia)*

EYAL—GILADI, Mrs H. M.Sc., Ph.D. — Dept of Zool., Hebrew Univ., JERUSALEM, Israel
- a. Problems concerning induction of mesoderm. *(Amphibia)*
- b. An attempt to measure the curves of activation and transformation in the process of neural induction. *(Amphibia)*

EYMANN, H. — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz
- a. Neuralchimären. *Triton* x *Bombinator (Amphibia)* (in Zusammenarbeit mit F. BALTZER)

EYRIES, Ch. Dr en Méd. — Lab. des Travaux Anat., Fac. de Méd. Nouvelle, 45 Rue des Sts Pères, PARIS VIe, France
- a. Développement de l'encéphale et des nerfs craniens. *Homo (Primates)*
- b. Oreille interne et complexe acoustico-facial. *Homo (Primates)*
- c. Rhombomerie. *Homo (Primates)*
- d. Origine du nerf pathétique. *Homo (Primates)*

FAASSEN, F. van Med. Drs — Anat. Embryol. Lab., Free Univ., Pr. Hendriklaan 27, AMSTERDAM Z, Holland
- a. Teratogenetic effect of thyreoectomised pregnant animals on the developing embryo. *Rattus norvegicus albinus (Rodentia)* (in collaboration with J. LANGMAN)
- b. Teratogenetic effects of thyroxin on the developing embryo in relation with the metabolism of the mother. *Rattus norvegicus albinus (Rodentia)*

FABER, J. M.Sc. — Hubrecht Lab., Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland
- a. Parts played by the self-differentiation of the blastema and by the influence of the stump in limb regeneration. *(Urodela)*
- b. Dependent and independent differentiation in limb development. *(Urodela)*

FANKHAUSER, G. F.I.I.E., Ph.D., Prof. — Dept of Biol., Princeton Univ., PRINCETON, N.J., U.S.A.
- a. Studies on spontaneous haploidy and polyploidy. *Ambystoma mexicanum (Urodela)* (in collaboration with R. R. HUMPHREY)
- b. The offspring of polyploids; their chromosome number, mortality, pathology etc. *Ambystoma mexicanum (Urodela)* (in collaboration with R. R. HUMPHREY)
- c. Androgenetic haploidy through refrigeration of freshly laid eggs. *Ambystoma mexicanum (Urodela)* (in collaboration with R. R. HUMPHREY)
- d. Development of diploid and heteroploid embryos implanted under the skin of adults. *Triturus (Urodela)*
- e. Measurement of response to tactile stimulation and of swimming capacity in diploid and triploid larvae. *Triturus (Urodela)*

FARINELLA—FERRUZZA, Mrs N. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
- a. Xenoplastic tailbud transplantations. *(Amphibia)*

FAURÉ-FREMIET, E. F.I.I.E., Dr, Prof. hon. — Lab. d'Embryol. expér., Coll. de France, Place Marcelin Berthelot, PARIS Ve, France
- a. Morphologie comparée et morphogenèse. *(Ciliata)* (en collaboration avec Miss M. HAMARD, et Miss M. GAUCHERY)

FAUTREZ, J. C. M.D., Prof., Member of the Royal Flemish Acad. of Sci. — Lab. of Anat., Fac. of Med., Univ. of Gent, Bylokekaai 1, GENT, Belgium

a. Histophotometrical studies of DNA content in germs and tissues.

FAUTREZ—FIRLEFYN, Mrs N. J. — Lab. of Anat., Fac. of Med., Univ. of Gent, Bylokekaai 1, GENT, Belgium

a. Cytochemical studies of embryonic development. *Artemia salina (Crustacea)*

FEDOROFF, S. M.A. — Dept of Anat., Univ. of Saskatchewan, SASKATOON, Canada

a. Chemical changes in embryonic and adult tissues due to chilling.

FELDMAN, M. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

a. Differentiation in tissue culture. *Gallus (Aves)* (in collaboration with Mrs R. M. CLAYTON—FREEDMAN and Mrs H. B. OLIVER—YATES)

FELL, Miss H. B. F.I.I.E., Dr — Strangeways Research Lab., Wort's Causeway, CAMBRIDGE, England (U.K.)

FELTS, W. J. L. A.B., A.M., Ph.D. — Dept of Anat., School of Med., Univ. of Minnesota, MINNEAPOLIS 14, Minn., U.S.A.

a. Whole bone transplantation; age differences in host-donor tissue relationship; effects of irradiation upon host-donor relationship: induction processes in bone and cartilage transplants. *Mus, Rattus (Rodentia)*

FENART, R. — Lab. des Travaux Anat., Fac. de Méd. Nouvelle, 45 Rue des Sts Pères, PARIS VIe, France

a. Développement du plexus brachial. *Homo (Primates)* (en collaboration avec G. OLIVIER)

FEREMUTSCH, K. Dr Med. — Hirnanat. Inst. der Psychiatr. Univ. Klinik, Med. Fak., Waldau, BERN, Schweiz

a. Endhirnentwicklung, speziell der Rinde und Bauplan. *Mus (Rodentia), Homo (Primates)*

b. Comparative development of the brain. *Cricetus auratus (Rodentia)* (in collaboration with F. STRAUSS)

c. Endhirnentwicklung, speziell Cortex. *Microcebus murinus (Primates)*

FICQ, Mrs A. A. Doct. en Sci. Biol. — Lab. de Morphol. anim., Univ. libre de Bruxelles, 1850 Chaussée de Wavre, BRUXELLES-Auderghem, Belgique

a. Application d'une méthode autoradiographique par irradiation neutronique, au dosage et à la localisation du Lithium dans des embryons. *Ambystoma, Pleurodeles (Urodela)*

b. Application d'une méthode autoradiographique à l'étude du phénomène d'induction. *Ambystoma, Pleurodeles, Rana (Amphibia)*

c. Etude autoradiographique du métabolisme au cours de l'oogénèse. *Asterias (Asteroidea, Echinodermata), Rana (Anura)*

FILOGAMO, G. Dr — Inst. of human Anat., Corso Massimo d'Azeglio 52, TORINO, Italy

a. Histo- and organotypical growth of the embryonic liver in vitro. *Gallus domesticus (Aves)*

FISCHBERG, M. Dr Phil. (Zürich), M.A. (Oxford) — Dept of Zool. and Comp. Anat., Univ. Museum, OXFORD, England (U.K.)

FISCHIAROLO, G. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
  a. The determination of the entoderm. *(Amphibia)*

FISHER, F. J. F. M.Sc., Ph.D. — School of Bot., Univ. of Melbourne, CARLTON N3, Victoria, Australia
  a. Morphogenesis of variations in leaf dissection as occurring in the normal developmental change from juvenile to adult and as induced by changes in the environment, particularly temperature. *Ranunculus hirtus* B. + S. *(Ranales)*

FISK, A. M.Sc. — St Mary's Hosp., Med. School, Norfolk Place, Paddington, LONDON W. 2, England (U.K.)

FITZGERALD, L. R. Ph.D. — Div. of Anat., Med. Units Div., Fac. of Biol. Sci., Univ. of Tennessee, MEMPHIS 3, Tenn., U.S.A.
  a. Effects of temperature on neonates and development of thermo-regulatory mechanisms. *Mus musculus (Rodentia)*
  b. Metabolic characteristics of the neonatal period. *Mus musculus (Rodentia)*

FLEISCHHAUER, K. Dr Med. — Anat. Inst. der Univ. Kiel, Neue Univ., Haus 30, KIEL, Deutschland
  (no embryological work in progress)

FLEXNER, L. B. B.S., M.D., Prof. — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
  a. Flow of carbon from glucose in the developing cerebral cortex. *Cavia cobaya (Rodentia)*
  b. Enzyme activities in fetal liver and cerebral cortex. *Cavia cobaya*
  c. Placental transfer using radioisotopes. *Cavia cobaya (Rodentia)*

FONSECA SACARRÃO, G. da Dr Sc. — Museu e Lab. Zool. d. Fac. d. Ci., Univ. d. Lisboa, LISBOA, Portugal
  a. Development of chromatophores and epistellar body. *(Cephalopoda)*

FONTANA, J. S. — Central de Investig., Minist. de Salud Públ. de la Nación, Bolivar 1128, BUENOS AIRES, Argentina

FORD, E. H. R. B.A., M.B., B.Chir. — Dept of Anat., St Thomas's Hosp. Med. School, LONDON S.E. 1, England (U.K.)
  a. Growth of the foetal skull. *Homo (Primates)*

FORD, P. B.Sc., Ph.D., Assoc. Prof. — Dept of Zool., Univ. of British Columbia, VANCOUVER, B.C., Canada
  a. The morphogenesis and structure of the gastric gland. *Castor canadensis* (Kuhl) *(Rodentia)*
  b. The development of the pronephros. *Onchorhynchus gorbuscha* (Walbaum) *(Teleostei)*
  c. The development of the mesonephros and some comments on its structure in relation to the anadromous nature. *(Teleostei)*

FOWLER, I. B.S., M.S., Ph.D. — Dept of Anat., School of Med., Univ. of North Carolina, CHAPEL HILL, N.C., U.S.A.
  a. The role of the notochord in the formation of the vertebrae. *Gallus domesticus* (various varieties) *(Aves)*
  b. The influence of the neural tube in regional differentiation of vertebrae. *Gallus domesticus* (various varieties) *(Aves)*
  c. The intrinsic control of canalization in the development of the tailbud neural tube. *Gallus domesticus* (White Rock) *(Aves)*

FOX, H. B.Sc., Ph.D. — Dept of Zool. and Comp. Anat., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
a. Compensatory hypertrophy in the pronephros. *Triturus cristatus carnifex (Urodela)*
b. Effect of different osmotic solutions on the development of the pronephros. *Triton helveticus (Urodela)*
c. Effect of decapsulation on the development of the pronephros. *Triton helveticus (Urodela)*
d. The musculature in the larval head. *(Urodela)*
e. Morphology and homologies of the pronephros. *(Urodela)*

FRANCIS, E. T. B. B.Sc., Ph.D., Dr — Dept of Zool., Univ. of Sheffield, SHEFFIELD, England (U.K.)
a. The development and histogenesis of the conducting system of the heart. *(Mammalia)* (in collaboration with F. DAVIES, Dept of Anat.)

FRANÇOIS, Y. Lic. ès Sci. — Mus. Nat. d'Hist. Nat., 61 Rue de Buffon, PARIS Ve, France
a. Morphogenesis of the fins. *Salmo* and other spec. *(Teleostei)*

FRANZÉN, Å. S. Fil. lic. — Zool. Inst., Uppsala Univ., UPPSALA, Sweden
a. Comparative study of the spermatozoon and spermatogenesis. *(Evertebrata)*

FRASER, A. S. Ph.D. — C.S.I.R.O. Anim. Gen. Sect., c/o Dept of Zool., Univ. of Sydney, SYDNEY, N.S.W., Australia
a. Skin grafting. *Mus musculus (Rodentia)*
b. Production of phenocopies by x-irradiation of embryos. *Mus musculus*

FRASER, R. C. B.S., M.S., Ph.D. — Dept of Zool. and Entomol., Univ. of Tennessee, KNOXVILLE, Tenn., U.S.A.
a. Physiological studies of early embryogeny. *Gallus domesticus (Aves)*
b. The rôle of the iodine carrier in metamorphosis. *Rana pipiens (Anura)*
c. Blood supply in limb regeneration. *Rana pipiens (Anura)*

FRIBERG, U. Med.kand. — Embryol. Dept, Histol. Inst., Karolinska Inst., Solnavägen 1, STOCKHOLM 60, Sweden

FRICK, H. Dr Med. — Dr Senckenberg. Anat. Inst., Med. Fak. der Univ., Ludwig Rehnstr. 14, FRANKFURT/Main-Süd, Deutschland

FROST, D. M.S. — Coll. of Pharmacy, Rutgers Univ., NEWARK, N.J., U.S.A.
a. Causes of regional differences in pigment pattern. *Siredon mexicanum*

FUJII, S. D.Sc., Prof. — Biol. Inst., Kobe Univ., KOBE, Japan
a. Developmental and genetical studies on the imaginal discs (Bar, Lobe, and eyeless mutants). *Drosophila melanogaster (Diptera)*

FUJII, T. Dr Sci, Prof. — Zool. Inst., Fac. of Sci., Tokyo Univ., TOKYO, Japan
a. The nucleolus and its possible role in mitosis, as seen in living cells. *(Echinodermata; Mammalia)*
b. Investigations with tracer elements. *(Echinodermata; Mammalia)*

FUKUDA, S. D.Sc. — Katakura Sericult. Exper. Stat., MATSUMOTO CITY, Japan
a. Hormonal mechanism of metamorphosis. *(Insecta)*
b. Experimental studies on the voltinism and embryonic development. *Bombyx, Philosamia, Lymantria,* etc. *(Lepidoptera)*

  c. Experimental studies on the mechanism of egg-laying and embryonic development. *Bombyx mori (Lepidoptera)*
GAILLARD, P. J. Med. Dr, Prof. — Lab. for Cytol. and exper. Histol., Fac. of Med., Univ. of Leyden, Rijnsburgerweg 10, Boerhaavekwartier, LEIDEN, Holland
  a. Developmental potencies of the fetal germinal epithelium in explants. *Homo sapiens (Primates)*
GALLERA, J. Ph.D. — Inst. d'Anat., Fac. de Méd., Univ. de Genève, 20 Rue Ecole de Méd., GENÈVE, Suisse
  a. Etude descriptive du développement de l'innervation du coeur. *Gallus (Aves)* (en collaboration avec J. A. BAUMANN)
  b. Etude expérimentale sur le développement histogénétique du système nerveux. *(Amphibia)*
GALLIEN, L. Dr ès Sci., Prof. — Lab. d'Embryol., Fac. des Sci., Univ. de Paris, 12 Rue Cuvier, PARIS Ve, France
  a. Analyse expérimentale de l'ontogénèse sexuelle. *Pleurodeles, Xenopus*
  b. Hétéroploidie expérimentale. *(Amphibia)*
  c. Hybridation naturelle. *Triturus* spp. *(Urodela)*
GATES, A. H. B.Sc. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
  a. Study of eggs from superovulated prepuberal females. *Mus musculus*
    1. time relationships between ovulation and fertilization.
    2. viability and development of transplanted eggs.
GEIGER, W. Dr Phil. — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz
  a. Elektronenmikroskopische Struktur von Sperma. *(Pisces)*
GEIGY-HEESE, R. Dr., Prof. — Schweiz. Tropeninst., Socinstr. 57 — Zool. Anstalt der Univ., Rheinsprung 9, BASEL, Schweiz
  a. Embryonale und postembryonale Entwicklung von Kopf und Darm. *Esox lucius (Teleostei)*
  b. Endocrinologie der Metamorphose (Xenoplastische Transplantation induktiver Organe). *(Insecta)*
  c. Uebertragung von Spirochaetosen über das mütterliche Ovarium auf die Embryonen und damit auf die Nachkommen der nächsten Generation. *(Ixodidae, Acari, Arachnoidea)*
GEILENKIRCHEN, W. L. M. M.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
  a. Metabolism and respiration of egg and embryo. *Limnaea stagnalis (Gastropoda)*
  b. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with H. L. de BEAUFORT; J. BOENDER; A. J. M. LEEUWENBERG; J. A. LEUSSINK; Miss F. J. LODDER; Chr. P. RAVEN; W. de ROVER; Miss A. M. G. v. d. SANDE; A. F. SCHREURS and W. ZOUTEWELLE)
GENNARO, Jr., J. F. Ph.D. — Dept of Anat., Coll. of Med., State Univ. of New York, 350 Henry St, BROOKLYN 1, N.Y., U.S.A.
  a. Effects of radiation on tissues. *(Amphibia* and *Mammalia)*
  b. Adrenal transplantation. *(Mammalia)*
GÉRARD, P. F.I.I.E., Prof. — Lab. d'Histol., Fac. de Méd. de l'Univ., 97 Rue aux Laines, BRUXELLES, Belgique

GHIRARDELLI, E. Prof. — Ist. di Zool., Via S. Giacomo 9, BOLOGNA, Italia

a. L'action de quelques sels sur le développement de l'oeuf. *Spadella (Chaetognatha)*
b. La formation des cellules germinales. *Spadella (Chaetognatha)*

GILBERT, Miss C. M.Sc., D.Sc. (Rand) — Anat. Dept, Med. School, Univ. of Witwatersrand, Hospital Hill, JOHANNESBURG, S. Africa

GILBERT, P. W. A.B., Ph.D. — Dept of Zool., Cornell Univ., ITHACA, N.Y., U.S.A.

bia, Mammalia)
b. Studies on reproductive habits and structures, especially the clasper mechanism and the function of the siphon sacs. *(Elasmobranchii)*

GILLMAN, J. D.Sc., M.B., Ch.B. (Rand), Prof. — Physiol. Dept, Med. School, Univ. of Witwatersrand, Hospital Hill, JOHANNESBURG, S. Africa

GIROUD, A. F.I.I.E., Prof. — Lab. d'Embryol., Fac. de Méd., 45 Rue des Sts Pères, PARIS VIe, France

a. Recherches sur l'influence tératogène des avitaminoses maternelles. *Mus rattus (Rodentia)*
b. Recherches sur l'influence tératogène des intoxications maternelles. *Mus rattus (Rodentia)*
c. Etude des cas tératologiques individuels. *Homo (Primates)*
d. Développement anormal de l'encéphale. *Mus rattus (Rodentia)*

GITLIN, G. B.Sc., Ph.D., M.B., Ch. B. — Dept of Anat., Hadassah Med. School, Hebrew Univ., JERUSALEM, Israel

a. Origin of epithelium of cervical canals of uterus. *Mus norvegicus albinus (Rodentia)*
b. Forelimb regeneration in the adult. *Xenopus laevis (Anura)*

GLENISTER, T. W. M.B., B.S. Ph.D. — Anat. Dept, Charing Cross Hosp. Med. School, 62 Chandos Place, LONDON W.C. 2, England (U.K.)

a. The development of the urethra and associated structures. *Homo* and other spec. *(Mammalia)*
b. The early embryology. *Macrorhinus* spec. *(Pinnipedia)*
c. Self- and dependent organization of the nervous system. *(Amphibia)*
d. Placentation. *Mustela furo (Carnivora)*

GLIMSTEDT, G. Med.Dr, Prof. — Tornblad-Inst. of comp. Embryol., Biskopsgatan 7, LUND, Sweden

GLOOR, H. J. Ph.D., Prof. — Genet. Inst. der Rijks Univ., 5e Binnenvestgracht 8, LEIDEN, Holland

a. Differentiation in imaginal discs. *Drosophila melanogaster (Diptera)*

GOBETTO, A. Dott. — Ist. di Anat. veter., Via Nizza 52, TORINO, Italia

a. Glycogen and lipids in the adipose tissue during fetal development. *Mus musculus (Rodentia)*
b. Blocking apparatuses in large arteries of fetuses. *Sus scrofa domestica (Artiodactyla)*

GODINA, G. Prof. — Ist. di Anat. veter., Via Nizza 52, TORINO, Italia

a. Researches on the differentiation and growth in vitro of the neurons of the embryonic nervous centers. *Gallus domesticus (Aves)*
b. Various growth modalities of the neurites in in vitro explants of nervous tissue. *Gallus domesticus (Aves)*

GODLEWSKI, H. G. Med.Dr — Inst. of Histol. and Embryol., Med. Acad., GDAŃSK, Poland

GOLDSMITH, E. D. Dr, Prof. — Dept of Histol., Coll. of Dentistry, New York Univ., 477 First Ave, NEW YORK 16, N.Y., U.S.A.

GOLDIE, M. — Dept of Zool., Univ. of Connecticut, STORRS, Conn. U.S.A.
- a. Ontogenesis of enzymes. *Rana pipiens (Anura), Gallus domesticus (Aves)* (in collaboration with H. CLARK)

GOLDMAN, A. S. A.B., Sc.M. — Upstate Med. Center, State Univ. of New York, SYRACUSE 10, N.Y., U.S.A.
- a. Effects of ultraviolet radiation in nucleic acid synthesis in development. *Drosophila melanogaster (Diptera)*
- b. Ultraviolet action spectrum for morphogenetic movements (including role of nucleic acids in early embryology). *Drosophila melanogaster (Diptera)*

GONTCHAROFF, Miss M. Dr ès Sci. — Lab. d'Evolution des Etres organisés, Fac. des Sci. de Paris, 105 Boulevard Raspail, PARIS VIe, France

GONZÁLEZ GUZMÁN, I. Dr. — Instituto de Estudios Medicos y Biologicos, Univ. Nac. Auton. de México, Apartadao Postal 8109, MEXICO, D.F., México
- a. Development of erythro- and leucocytes. *Gallus, Rattus (Amniota)*
- b. Experimental and morphological cytology in vitro, in relation to the cytophysiology of immunity processes. *Gallus (Aves)*

GOODHART, C. B. M.A., Ph.D. — Dept of Zool., Downing Street, CAMBRIDGE, England (U.K.)
(no embryological work in progress)

GORINI, Miss I. Dr Biol. Sci. — Ist. di Zool. e Anat. comp., Univ. di Milano, Via Celoria 10, MILANO, Italia
- a. Proteins from eggs. *Gallus (Aves)*

GOSS, R. J. A.B., A.M., Ph.D. — Arnold Biol. Lab., Brown Univ., PROVIDENCE 12, R.I., U.S.A.
- a. Fin and taste barbel regeneration. *Ameiurus (Pisces)*
- b. Morphogenesis of regenerates. *Triturus (Urodela)*

GÖSZWALD, K. Dr Phil., Dr habil.rer. nat., Prof. — Inst. für Angewandte Zool. der Univ., Naturw. Fak., Röntgenring 10, WÜRZBURG, Deutschland

GOTHIÉ, Miss M. M. C. S. M.D., Dr ès Sci. — Lab. d'Hormonol. et de Cytol., Ecole Pratique des Hautes Etudes, Hôpital Broca, 111 Rue L. M. Nordmann, PARIS XIIIe, France
- a. Etude des substances tensioactives sur la morphogénèse embryonnaire par micro-injection dans de jeunes gastrulae. *(Amphibia)*
- b. Etude des injections de noyaux et dérivés des nucléines dans de jeunes gastrulae. *(Urodela)*
- c. Traceurs et spermatozoides. *Homo (Primates)*
- d. Etude de la morphogénèse par les traceurs. *Mus musculus (Rodentia)*
- e. Décoloration du dichlorophenol indophenol (DPIP) par l'ovocyte. Etude par micro-injection quantitative. *Mus musculus (Rodentia)* (en collaboration avec R. MORICARD et O. BAIOCCHI)
- f. Utilisation des traceurs dans l'étude des corrélations unissant les gonadotrophines, le liquide folliculaire et la maturation ovulaire. *Oryctolagus cuniculus (Lagomorpha)* (en collaboration avec R. MORICARD)

g. Etude de la fonction méiogène du liquide folliculaire; utilisation des traceurs (en collaboration avec R. MORICARD)
h. Utilisation des traceurs 32 P et 35 S dans l'étude de la morphogénèse du tractus génital.

GOTO, T. M.A. — Biol. Lab., Keio Univ., Hiyoshi, Kohoku, YOKOHAMA, Japan
a. Studies on the influence of the pterin substances upon development. *Bombyx mori (Lepidoptera), Rana nigromaculata (Anura)*

GOULD, R. P. B.Sc., M.Sc. — Anat. Dept, Middlesex Hosp., Med. School, LONDON W. 1, England (U.K.)
a. Effect of diets, deficient in one or more of the essential amino acids, on the development of embryos. *Rattus norvegicus albinus (Rodentia)*

GOVAERT, J. — Lab. of Anat., Fac. of Med., Univ. of Gent, Bylokekaai 1, GENT, Belgium
a. Embryology. *Fasciola hepatica (Trematoda)*

GRABOWSKI, C. T. B.S., Ph.D. — Dept of Anat., School of Med., Univ. of Pittsburg, PITTSBURGH 13, Pa, U.S.A.
a. Experimental analysis of initiation and early development of the central nervous system. *Gallus domesticus (Aves)*
b. Role of Hensen's node in development. *Gallus domesticus (Aves)*

GRANT, Ph. Dr — Inst. for Cancer Research, 7701 Burholme Ave, PHILADELPHIA 11, Pa., U.S.A.

GRAUMANN, W. Dr Med. — Anat. Inst. der Univ., Burgstr. 51, GÖTTINGEN, Deutschland
a. Developmental histochemistry (esp. carbohydrate compounds). *Mus musculus, Mesocricetus auratus (Rodentia)*

GREEN, Mrs E. U. Ph.D. — Lankenau Hospital Research Inst. and Inst. for Cancer Research, Burholme Ave, Fox Chase, PHILADELPHIA 11, Pa, U.S.A.
a. Morphological, cytological and cytochemical studies of the effects of carcinogen-protein conjugates on cleavage and early development *Rana (Anura)*
b. Nuclear constitution of mesenchymal cells and their derivatives. *Rana (Anura)*

GREENWALD, G. S. Ph.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
a. The effects of steroid administration to the pregnant animal. *Oryctolagus cuniculus (Lagomorpha)*
b. Delayed implantation in pregnant, lactating animals. *Mus musculus, Rattus rattus (Rodentia)*

GREFTE, Miss G. J. de — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
a. Experiments designed to test relations of some inhibitors of embryonic development to the effect of X-rays. *(Urodela* and *Rodentia)* (in collaboration with H. A. L. TRAMPUSCH)

GREGG, J. R. B.S., Ph.D. — Dept of Zool., Fac. of pure Sci., Columbia Univ., Broadway and 116th St, NEW YORK 27, N.Y., U.S.A.
a. Metabolism of normal animals and hybrids. *Rana pipiens, Rana pipiens* x *Rana sylvatica (Anura)*
b. Metabolism and morphogenetic movements of explant systems of normal and hybrid tissues. *Rana pipiens, Rana pipiens* ♀ x *Rana sylvatica* ♂

GREULICH, R. C. B.A., Ph.D. — Dept of Anat., School of Med., Univ. of Calif., LOS ANGELES, Cal., U.S.A.

a. The development of bones and teeth as shown by radioautographs of radio-carbon-labeled bicarbonate. *(Vertebrata)*

b. Radioautographic studies of chorio-allantoic placenta using radio-carbon and radio-sulfur. *Mus Norvegicus albinus (Rodentia)*

GRIGNON, G. — Lab. d'Histol., Dép. d'Embryol., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

GROBSTEIN, C. Ph.D. — Developm. Physiol. Unit., Nat. Cancer Inst., BETHESDA, Md, U.S.A.

a. Morphogenesis and histogenesis of early rudiments in vitro and on reimplantation. *Mus musculus (Rodentia)*

b. Epithelio-mesenchymal inductive interactions in early rudiments. *Mus musculus (Rodentia)*

c. Time of cytodetermination in relation to morphogenetic and histogenetic events. *Mus musculus (Rodentia)*

GRODZIŃSKI, Z. Prof. — Zakład Anat. Porównawczej U. J. im. H. Hoyera, św. Anny 6, KRAKOW, Poland

a. Respiration of the isolated embryonic heart. *(Salmonidae, Teleostei)*

b. Development of the blood vessels in the tail of embryos. *Salmo (Teleostei)*

c. Physico-chemical properties of the yolk. *Macropodus, Betta* and *Pterophyllum (Teleostei)*

GROENENDIJK—HUIJBERS, Mrs M. M. M.D. — Anat.-Embryol. Lab. der Rijks Univ., Oostersingel 69, GRONINGEN, Holland

a. Investigation of the development of the sexual apparatus by means of implantation and castration experiments. *Gallus domesticus (Aves)*

GRUENWALD, P. M.D. — Pathol. Section, Veterans Adm. Hosp., BROOKLYN 9, N.Y., U.S.A.

a. Embryonic development of selenium-induced malformation. *Gallus domesticus (Aves)*

b. Systematic investigation of current cases of prenatal disease and malformation in autopsy material (Part of "Brooklyn Survey of Neonatal Pathology"). *Homo (Primates)*

c. Normal and abnormal expansion of the lungs in newborn infants (experimental inflation with various media). *Homo (Primates)*

GRÜNEBERG, H. Ph.D., M.D., D.Sc. — Dept of Genetics, Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)

a. Developmental genetics of the axial and appendicular skeleton: effects of major genes; development and genetics of "patch", a semidominant spotting gene with teratological effects in the homozygote. *Mus musculus (Rodentia)*

GRÜNTHAL, E. Dr, Prof. — Hirnanat. Inst. der Psychiatr. Univ. Klinik, Med. Fak., Waldau, BERN, Schweiz
(no embryological work in progress)

GUARDABASSI, Miss A. Dr — Inst. of comp. Anat., Via Giovanni Giolitti 34, TORINO, Italia

a. The development of the endolymphatic sac following thymus removal in tadpoles. *Xenopus laevis (Anura)*

GUBBAY, Miss V. B.Sc. — Dept of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, South Africa

a. The early embryology, placentation and development of morphological peculiarities. *Eremitalpa granti* (Broom) *(Insectivora)*

GUGGENHEIM, P. A.B., M.D. — Dept of Anat., School of Med., The Creighton Univ., OMAHA, Nebraska, U.S.A.

a. The significance and fate of embryonic mesenchyme in the middle ear. Morphologic study of ears of embryos from 1-27 days. *Rattus norvegicus* (Holtzmann strain) *(Rodentia)* (in collaboration with L. P. CLEMENTS and A. SCHLESINGER)

b. Freeze-drying studies with refined cytologic study and investigation of changes in ground substance of mesenchyme. *Rattus norvegicus* (Holtzmann strain) *(Rodentia)* (in collaboration with L. P. CLEMENTS and A. SCHLESINGER)

c. Fate of the mesenchyme in the middle ear in dwarf animals and their "normal" heterozygous littermates. *Rattus (Rodentia)* (in collaboration with L. P. CLEMENTS and A. SCHLESINGER)

GUSTAFSON, G. S. Fil.mag. — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden

GUSTAFSON, T. Fil. Dr — Wenner-Grens Inst. for exper. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

a. Studies on the mechanism of gastrulation. *(Echinoidea)*

b. Growth promoting substances and vitamines in embryonic material. *(Echinoidea)*, ***Xenopus (Anura)***

c. The effect of various antimetabolites on embryonic development. *(Echinoidea)* (in collaboration with S. HÖRSTADIUS)

d. Enzyme adaptation in embryonic and adult cells studied by means of tissue culture technique.

GUTH, L. A.B., M.D. — Section Devel. and Regen., Lab. of Neuroanatomical Sci., NINDB, Nat. Inst. of Health, BETHESDA, Md, U.S.A.

a. Neuronal specificity in the autonomic nervous system. *(Mammalia)*

GUYÉNOT, E. Dr Med., Dr Sci. — Inst. de Zool. et Anat. comp., Univ. de Genève, Rue de Candolle, GENÈVE, Suisse

GYLLENSTEN, L. J. W. Med. Dr — Embryol. Dept, Histol. Inst., Karolinska Inst., Solnavägen 1, STOCKHOLM 60, Sweden

a. Postnatal development of lymphatic system; endocrinological influences (thyroid, thymus). *Cavia cobaya (Rodentia)*

b. Postnatal development of newborns in different oxygen concentrations, with special consideration to malformations of the eyes, lungs and cardiovascular system. *Mus musculus (Rodentia)*.

HADORN, E. F.I.I.E., Dr Phil., Prof. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz

a. Field organisation of the genital imaginal disc. *Drosophila* spec. *(Diptera)*

b. Developmental analysis of lethal factors. *Drosophila* spec. *(Diptera)*

c. Chromatographic studies of fluorescent substances and amino acids. *Drosophila* spec. and *Ephestia* spec. *(Insecta)*

HAGELIN, L. O. Fil.mag. — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden

a. Studies on the development of Rathke's pouch and the hypophysis. *(Cyclostoma; Ganoidei; Teleostei)*

HAGET, A. Dr ès Sci. — Lab. de Zool., Fac. des Sci. de Bordeaux, 40 Rue Lamartine, TALENCE, Gironde, France

- a. Analyse expérimentale de la morphogénèse embryonnaire de la tête. *Leptinotarsa (Coleoptera)*

HAGGIS, A. J. A.B., M.S., Ph.D. — Dept of Biol., Coll. of Arts and Sci., Univ. of Rochester, ROCHESTER 3, N.Y., U.S.A.

- a. Analysis of the determination of the olfactory placode. *Ambystoma punctatum (Urodela)*

HÄGGQVIST, G. Prof. — Embryol. Dept, Histol. Inst., Karolinska Inst., Solnavägen 1, STOCKHOLM 60, Sweden

- a. Experimental polyploidy. *(Vertebrata)*

HAGSTRÖM, B. E. B.A. — Wenner-Grens Inst. for exp. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

HAJRA, B. M.Sc. — Dept of Zool., Presidency Coll., College St, CALCUTTA 12, India

- a. Investigation of morphogenesis by cytochemical means. *Amoeba (Protozoa)*
- b. Mitotic counts in the lateral extension of the blastoderm. *Gallus (Aves)* (in collaboration with S. MOOKERJEE)

HALE, L. J. Ph.D. — Dept of Zool., Univ. of Edinburgh, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

- a. Morphogenetic features in asexual development. *(Hydrozoa; Tunicata)*

HALL, E. K. Ph.D., D.Sc. — Dept of Anat., School of Med., Univ. of Louisville, 101 West Chestnut St, LOUISVILLE 2, Ky, U.S.A.

HALL, T. S. Ph.D., Prof. — Dept of Zool., Washington Univ., Lindell and Skinker Av., ST LOUIS 5, Mo., U.S.A.
(no embryological work in progress)

HALLIDAY, R. B.Sc. — Agr. Res. Council Unit of Embryol., Dept of Zool., Univ. of North Wales, BANGOR, Caernarvonshire, N. Wales (U.K.)

- a. Immunological relations of mother and young. *(Mammalia)*

HAMA, T. M.A., D.Sc., — Biol. Lab., Keio Univ., Hiyoshi, Kohoku, YOKOHAMA, Japan

- a. Morphogenetical and chemical analysis of the organizer. *Triturus pyrrhogaster (Urodela)*
- b. Studies on the influence of the pterins and their like upon development in various animals. *(Arthropoda, Pisces, Amphibia,* etc.)
- c. Developmental and chemical studies of the chromatophores. *(Amphibia, Pisces)*

HAMBURGER, V. F.I.I.E., Ph.D., Prof. — Dept of Zool., Washington Univ., Lindell and Skinker Av., ST LOUIS 5, Mo., U.S.A.

- a. Neuro-embryology. *Gallus domesticus (Aves)*

HAMILTON, H. L. B.A., M.S., Ph.D., Prof. — Dept of Zool. and Entomol., Div. of Sci., Iowa State Coll., AMES, Iowa, U.S.A.

- a. Studies on the relation of enzyme systems to morphogenesis. *Gallus domesticus (Aves)*
- b. Factors influencing the differentiation of melanophores in tissue cultures. *Gallus domesticus (Aves)*
- c. Marking experiments to ascertain the fate of the incomplete and first complete somites. *Gallus domesticus (Aves)*

HAMILTON, W. J. F.I.I.E., Prof. — Anat. Dept, Charing Cross Hosp. Med. School, 62 Chandos Place, LONDON W.C. 2, England (U.K.)

- a. Growth and atresia of the ovarian follicles. *Mustela putorius furo* L. *(Carnivora)* (in collaboration with R. J. HARRISON)

b. Placentation and changes in reproductive tract. *(Cervidae)* (in collaboration with R. J. HARRISON)
c. The development and structure of the placenta. *Homo (Primates)* (in collaboration with J. D. BOYD, Cambridge)

HAMMOND, W. S. Ph.D., Prof. — Dept of Anat., School of Med., State Univ. of New York, 766 Irving Ave, SYRACUSE 10, N.Y., U.S.A.
a. Development of the autonomic nervous system. *Gallus domesticus (Aves)* (in collaboration with C. L. YNTEMA)
b. Development of the visceral skeleton. *Gallus domesticus (Aves)* (in collaboration with C. L. YNTEMA)

HAMPÉ, A. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Etude de la régulation des ébauches des membres. *Gallus gallus (Aves)*
b. La différenciation sexuelle, par les méthodes de greffes, de castration, d'injections d'hormones et d'explantations. Différenciation normale et inversion sexuelle des gonades, des voies génitales et des caractères somatiques précoces. *Gallus* and *Anas (Aves)* (en collaboration avec Et. WOLFF, Mrs Y. LUTZ-OSTERTAG, Mrs D. SCHEIB—PFLEGER, Miss B. SALZGEBER, et G. STRUDEL)

HANAOKA, K. I. D.Sc., Prof. — Dept of Biol., Fac. of Lib. Arts and Sci., Yamagata Univ., Kinomekoji 80, YAMAGATA, Japan
a. Neurosecretory hormones in relation to reproductive cycle. *Potamon dehaani (Decapoda, Crustacea)*

HARA, K. B.Sc., M.Sc. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-ku, NAGOYA, Japan
a. Continuation of the work done in Utrecht, 1954 (analysis of induction phenomena). *Gallus (Aves)*

HARDER, W. Dr rer.nat. — Inst. für Fischereibiol. der Univ. Hamburg, Holstenwall 24, HAMBURG 36, Deutschland
a. Post-embryonale Entwicklung, insbesondere die Umwandlungen des Verdauungsapparates während der Metamorphose. Vergleichende Untersuchungen innerhalb zweier Familien. *Clupea harengus, C. sprattus, C. pilchardus (Clupeidae), Engraulis encrasicholus (Engraulidae, Teleostei)*

HARDY, Miss M. H. M.Sc., Ph.D. — Div. of Anim. Health and Production, C.S.I.R.O., McMaster Anim. Health Lab., Parramatta Road, Glebe, SYDNEY, N.S.W., Australia (Guest-worker from C.S.I.R.O., Sheep Biol. Lab.)
a. Induction of hair follicle formation. *Mus musculus, Ovis (Mammalia)* (in collaboration with A. G. LYNE)
b. Pigmentation processes in skin and hair in tissue culture. *Mus musculus (Rodentia)*
c. Analysis of causes of pattern and density of hair follicles in skin. *Ovis (Artiodactyla)* (in collaboration with A. G. LYNE)
d. Effects of the gene ,,Tabby'' on hair follicle development, in vivo and in vitro. *Mus musculus (Rodentia)*
e. Growth of skin and hair in vivo and in vitro. *Trichosurus vulpecula, Perameles nasuta (Marsupialia)* (in collaboration with A. G. LYNE)

HARKMARK, W. Cand.Med. — Anat. Inst., Univ. of Oslo, OSLO, Norway

HARRIS, J. E. M.A., Ph.D., Prof. — Dept of Zool., The Univ., BRISTOL 8, England (U.K.)

a. Development of the nervous system and behaviour pattern. *Scylliorhinus canicula, Petromyzon fluviatilis, Salmo* spp. *(Pisces)* (in collaboration with H. P. WHITING)

HARRIS, M. Ph.D., A.B., Prof. — Dept of Zool., Univ. of Calif., BERKELEY 4, Cal., U.S.A.

a. Growth factors in alcoholic extracts of embryos. *Gallus (Aves)*
b. Interaction of nucleoprotein and dialysate growth factors in embryo extract. *Gallus (Aves)*

HARRISON, G. A. B.A., B.Sc. — Dept of Anat., Univ. of Liverpool, LIVERPOOL, England (U.K.)

a. Growth and genetical selection at high temperatures. *(Mammalia)*

HARRISON, J. R. B.A., M.A., Ph.D. — Dept of Zool., Miami Univ., OXFORD, Ohio, U.S.A.

a. In vitro studies on the growth and differentiation of the retinal pigment in the embryonic eye: analysis of developmental factors contained in the yolk-albumen of the egg. *Gallus domesticus (Aves)*
b. Effect of lowered incubation temperature on the development and potencies of the blastoderm. *Gallus domesticus (Aves)*

HARRISON, R. G. F.I.I.E., M.D., Ph.D., Sc.D., L.L.D., Prof. (Emer.) — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.

a. Development of limbs with reference to the roles played by ectoderm and mesoderm. *Ambystoma* (various species) *(Urodela)*
b. Induction and symmetry relations in the development of the internal ear. *Ambystoma punctatum (Urodela)*

HARRISON, R. G. M.A., D.M. — Dept of Anat., Univ. of Liverpool, LIVERPOOL, England (U.K.)

a. The dependence of spermatogenesis on the vascularization of the testis. *(Mammalia)*
b. The effect of low temperature on spermatogenesis. *(Mammalia)*

HARRISON, R. J. M.A., D.Sc., M.D. — Anat. Dept, London Hosp. Med. Coll., Turner St, LONDON E. 1, England (U.K.)

a. Early development. *(Mammalia)*
b. Changes in the ovary. *(Mammalia)*
c. Placentation and changes in reproductive tract. *(Cervidae)* (in collaboration with W. J. HAMILTON)
d. Changes in reproductive tract and placenta. *(Pinnipedia* and *Carnivora)* (in collaboration with L. HARRISON MATTHEWS)
e. Distribution of radio-potassium in placenta and uterus. *(Rodentia* and *Carnivora)*

HARRISON MATTHEWS, L. D.Sc., F.R.S. — c/o The Zool. Soc. of London, LONDON, England (U.K.)

a. Changes in reproductive tract and placenta. *(Pinnipedia* and *Carnivora)* (in collaboration with R. J. HARRISON)

HART, D. S. M.A. — Canterbury Agric. Coll., Lincoln Coll., New Zealand

a. Ova production. *Ovis (Artiodactyla)*
    1. Classification of normal ova.
    2. Classification of abnormal ova.
    3. Fertilizability of ovum.
    4. Effect of photoperiodicity on ova.
    5. Embryo losses.

HARTUNG, E. W. Ph.D. — Dept of Zool., Univ. of Rhode Island, KINGSTON, R.I., U.S.A.
- a. Factors influencing tumor incidence. A study of the developmental, environmental and genetic factors operative in the development of socalled "melanin tumors". *Drosophila melanogaster (Diptera)*
- b. Studies on symmetry. *(Gastropoda)*

HARTWIG, H. Dr Phil. — Zool. Inst. der Univ. Köln, Kerpenerstr. 13, KÖLN-LINDENTHAL, Deutschland
- a. Wirkungsmechanismus von Schilddrüsenhormon.

HARVEY, Mrs E. BROWNE F.I.I.E., A.B., M.A., Ph.D. — Dept of Biol., Princeton Univ., PRINCETON, N.J., U.S.A.
- a. Centrifuging eggs, and development of fractions obtained by centrifugal force. Parthenogenetic merogony or development without nuclei. *(Echinoidea)*
- b. Monograph, including classified compilation of all experimental work. *Arbacia punctulata (Echinoidea)*
- c. Moving pictures of metamorphosis and of the natural history (in color). *Arbacia punctulata (Echinoidea)*
- d. Determination of sex by electrical method. *Arbacia punctulata*

HARVEY, E. B. B.S., M.A., Ph.D. — Dept of Zool., Univ. of Calif., DAVIS, Cal., U.S.A.
- a. Comparative microscopic study of placentation. *(Rodentia, Lagomorpha)*

HASSA, O. Dr Vet.Sc. — Dept of Histol., Veterinary Fac., ANKARA, Turkey

HAY, D. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université STRASBOURG, France
- a. Analyse du processus de régulation et de paragénèse. *(Selachii)* (en collaboration avec J. VIVIEN et J. SCHOTT)

HAYASHI, Y. M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan
- a. Isolation of pentose-nucleoproteins with regional inducing effects. Studies of their electrophoretic patterns and active loci. *(Amphibia, Mammalia)* (in collaboration with T. YAMADA and K. TAKATA)
- b. Chemical embryology of the blood island. *(Amphibia)* (in collaboration with T. YAMADA and K. TAKATA)

HEATH, H. D. Ph.D. — Dept of Biol. Sci., Stanford Univ., STANFORD, Cal., U.S.A.

HECKERMAN, R. O. B.S., M.S., Ph.D. — Dept of Biol. (Embryol. Division), Duquesne Univ., PITTSBURG 19, Pa, U.S.A.
- a. Differentiation of cells in the islet tissue of the embryonic pancreas. *Gallus domesticus (Aves), Sus domesticus (Mammalia)*

HEIDE, H. v. d. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
- a. Cytochemistry of polysaccharides during development. *Limnaea stagnalis (Gastropoda)*

HEILBRUNN, L. V. Ph.D., Prof. — Dept of Zool., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.

HEIM, W. G. A.B., M.A., Ph.D. — Dept of Agric., Univ. of Calif., LOS ANGELES, Cal., U.S.A.
- a. The role of catalase in growth and neoplasia.

HEMMINGS, W. A. B.A. — Agr. Res. Council Unit of Embryol., Dept of Zool., Univ. Coll. of North Wales, BANGOR, Caernarvonshire, N. Wales (U.K.)
a. Immunological relations of mother and fetus. *(Mammalia)*

HENKE, K. F.I.I.E., Dr Phil., Prof. — Zool. Inst. der Univ. Göttingen, Mathem.-Naturw. Fak., Bahnhofstr. 28, GÖTTINGEN, Deutschland
a. Embryonale und post-embryonale Entwicklungsgeschichte. *Carausius morosus (Phasmida, Insecta), Corixa* spec. *(Hemiptera)* (mit Mitarb.)
b. Entwicklungsphysiologie. *Drosophila mel. (Diptera), Ephestia kühniella (Lepidoptera), Anas boschas (Aves)* (mit Mitarbeitern)
c. Genetik. *Drosophila mel. (Diptera), Ephestia kühniella (Lepidoptera)* (mit Mitarbeitern)

HENLEY, Miss C. M.A., Ph.D. — Dept of Zool., Univ. of North Carolina, CHAPEL HILL, N.C., U.S.A.
a. Effects of radio-isotopes on mitosis. *Ambystoma maculatum (Urodela)* and *Chaetopterus pergamentaceus (Annelida)* (in collaboration with D. P. COSTELLO and D. E. KENT)

HENZEN, W. — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz
a. Augenentwicklung und Epidermisderivate der Mundregion in Chimären. *Triton* x *Bombinator (Amphibia)* (in Zusammenarbeit mit F. BALTZER)

HERLANT—MEEWIS, Mrs H. Dr Zool. — Lab. de Zool., Fac. des Sci., Inst. Zool. Torley-Rousseau, Univ. libre de Bruxelles, 50 Avenue F. D. Roosevelt, BRUXELLES, Belgique *soma (Oligochaeta)*
a. Réproduction asexuée, régénération et neurosecrétion. *Eisenia, Aeolo-*

HERREBOUT, W. M. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Relations between the spermaster and the second maturation division. *Limnaea stagnalis* (Gastropoda)

HERRMANN, H. Dr., Prof. — Div. Chem. Embryol., Med. Center, Univ. of Colorado, 4200 East Ninth Ave, DENVER 20, Colo, U.S.A.
a. Chemistry of muscle differentiation. *Gallus (Aves)* (in collaboration with I. R. KONIGSBERG and A. J. SAMUELS)
b. Study of developmental disturbances related to nutritional deficiencies investigated by application of anti-vitamins and anti-amino acids to the intact egg and to explants (somites). *(Aves)* (in collaboration with U. ROTHFELS KONIGSBERG)

HERTIG, A. T. B.S., M.D., Prof. — Dept of Pathol., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
— Boston Lying-in Hospital, 221 Longwood Ave, BOSTON 15, Mass.
— Free Hospital for Women, 245 Pond Ave, BROOKLINE, Mass.
a. Histochemical observations on early fertilized ova of less than 14 days age. *Homo (Primates)* (in collaboration with J. ROCK, W. J. MULLIGAN and Miss E. C. ADAMS)
b. Histochemical studies on developing embryos. *Homo (Primates)* (in collaboration with D. G. McKAY and Miss E. C. ADAMS)
c. Histochemical studies on abnormal trophoblast with special reference to hydatidiform mole and chorionepithelioma. *Homo (Primates)* (in collaboration with D. G. McKAY, K. BENIRSCHKE, W. BARDAWIL and Miss E. C. ADAMS)

HEUSER, C. H. F.I.I.E., Prof. — Dept of Micr. Anat., Med. Coll. of Georgia, AUGUSTA, Ga, U.S.A.

a. The first three weeks of development (Horizons I to X). *Homo (Primates)*

b. Development of the yolk sac. *Homo (Primates)*

HIGHNAM, K. C. M.Sc. — Dept of Zool., Univ. of Sheffield, SHEFFIELD, England (U.K.)

a. Influence of hormones on metamorphosis. *(Lepidoptera)*

HILLEMANN, H. H. B.S., M.A., Ph.D. — Dept of Zool., Oregon State Coll., CORVALLIS, Ore., U.S.A.

a. The primate placenta, comparative (other than man); histology, morphology, histochemical stains, electron microscopy. *(Primates)*

b. Studies on ovaries, reproductive tract, growth, development, placenta. *Chinchilla laniger (Rodentia)*

HILLER, S. M.D. — Inst. of Histol. and Embryol., Med. Acad., GDAŃSK, Poland

HINRICHSEN, K. Dr Med. — Anat. Inst. der Univ., Burgstr. 51, GÖTTINGEN, Deutschland

a. Histochemie von Entwicklungsprozessen, spez. Ribonucleinsäure (Extremitätenentwicklung, Zahnentwicklung). *Mus musculus (Rodentia)*

HINTZSCHE, E. Dr Med., Prof. ord. — Anat. Inst., Bühlstr. 26, BERN, Schweiz

a. Anorganischer Stoffwechsel. Fermentchemische Untersuchungen. *Homo* and other spp. *(Mammalia)*

b. Experimentelle Studien über Zellvermehrung in Gewebekulturen. Einwirkung fördernder und hemmender Substanzen. *Homo (Primates)*

c. Wirkung der Röntgen- und Betatronbestrahlung auf Gewebekulturen. *Mus, Homo (Mammalia)*

HIPP, E. Dr Med. — Anat. Inst. der Univ. München, Pettenkoferstr. 11, MÜNCHEN 15, Deutschland

a. Die embryonale Entwicklung der Kniegelenkskörper. *Homo (Primates)*
   1. Die Höhenentwicklung des Condylus femoris et tibiae.
   2. Die Torsion der Tibia.

HIRAIWA, Y. K. D.Sc. — Lab. of Zool., Fac. of Agric., Kyushu Univ., FUKUOKA, Japan

a. Studies on fertilization and reproduction. *(Mammalia)*

HIRATA, A. A. A.B., M.A. — Dept of Zool., Univ. of Calif., LOS ANGELES 24, Cal., U.S.A.

a. Stability of cellular particulates in developing tissues and in neoplasms. *Rattus (Rodentia)* (in collaboration with A. M. SCHECHTMAN)

HISHIDA, T. M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan

a. Metabolic analysis of early development. *Oryzias latipes (Teleostei)* (in collaboration with E. NAKANO)

b. Melanin formation in color phenotypes. *Oryzias latipes (Teleostei)* (in collaboration with T. YAMAMOTO)

c. Melanin formation. *Rhacophorus schlegeli var. arborea (Anura)* (in collaboration with H. TOMITA)

HJELMMAN, G. — Anat. Inst., Univ. of Helsinki, HELSINKI, Finland (no embryological work in progress)

HOADLEY, L. F.I.I.E., Prof. — Biol. Lab., Harvard Univ., Divinity Ave, CAMBRIDGE 38, Mass., U.S.A.

HOEK, J. v. d. M.V. Sc. — Veter. Anat. and Embryol. Inst., Bekkerstr. 141, UTRECHT, Holland
a. Histology and histochemistry of the endometrium during the estrous cycle. *Bos taurus (Mammalia)*

HOESSELS, Miss E. L. M. J. M.Sc. — Hubrecht Lab., Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland
— Veter. Anat. and Embryol. Inst., Bekkerstraat 141, UTRECHT Holland
a. Inductive capacity and self-differentiation of prechordal plate material as tested by explantation in "sandwiches" of competent ectoderm. *Ambystoma mexicanum (Urodela)*

HOFF-JÖRGENSEN, E. Dr.Phil. — Inst. of Biochem., Fac. of Med., Univ. of Copenhagen, Juliane Mariesvej 30, COPENHAGEN Ø, Denmark

HOGUE, Miss M. J. A.B., Ph.D., Assoc. Prof. (Em.) — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
a. Study of neurons and glia cells from the different parts of the brain, especially from the cerebellum of human fetuses, newborn babes and adult humans. *Homo (Primates)*
b. The effect of poliomyelitis viruses on brain cells grown in tissue cultures. *Homo (Primates)*

HOLM, K. Å. Fil.Dr — Zool. Inst., Uppsala Univ., UPPSALA, Sweden
a. Experimental investigation of the embryo (determination, prospective significance of embryonic areas). *(Araneae, Arachnoidea)*

HOLST CHRISTENSEN, P. J. Dr Phil. — Inst. for Alm. Zool., Universitetsparken 3, COPENHAGEN Ø, Denmark
a. Continued investigations on embryology. *(Insecta)*
b. Studies on larval hair development. *(Lepidoptera)*
c. Studies on the development of the lungs. *(Mammalia)*

HOLTER, H. Ph. D. — Cytochem. Dept, Carlsberg Lab., 8 Gl. Carlsbergvej, COPENHAGEN Valby, Denmark
a. Enzyme development in embryos. *(Echinodermata)*
b. Cytochemistry. *(Protozoa)*

HOLTFRETER, J. K. F. F.I.I.E., Ph.D., Prof. — Dept of Biol., Coll. of Arts and Sci., Univ. of Rochester, ROCHESTER 3, N.Y., U.S.A.
a. Studies on the diffusibility and toxicity of inductive agents. *(Urodela)*

HOLTZER, H. Ph.D. — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
a. Role of spinal cord and notochord in the morphogenesis of the vertebral column. *(Urodela, Aves* and *Mammalia)*
b. Histogenesis of embryonic and mature muscle. *(Aves* and *Mammalia)*
c. Factors influencing the organization of the neural action systems in the CNS. *(Urodela* and *Aves)*

HOLYOKE, E. A. Ph.D. — Dept of Anat., Coll. of Med., Univ. of Nebraska, OMAHA 5, Nebraska, U.S.A.
a. Effects of radiation on developing embryos. *Gallus (Aves)* (in collaboration with J. S. LATTA and A. O. CHAPMAN)

b. Experimental study of development of gonads. *Mus (Rodentia)* (in collaboration with J. S. LATTA and A. O. CHAPMAN)

HOMMES, O. — Anat.-Embryol. Lab., Free Univ., Pr. Hendriklaan 27, AMSTERDAM Z, Holland

a. Influence of influenza-virus during pregnancy on the developing embryo. *Mus musculus (Rodentia)* (in collaboration with J. LANGMAN)

HOOKER, D. Ph.D., Sc.D.(Hon.), Prof. — Dept of Anat., School of Med., Univ. of Pittsburgh, PITTSBURGH 13, Pa, U.S.A.

a. Study of the physiological responses of fetuses. *Homo (Primates)*
b. Study of the reactivity of the fetus to exteroceptive stimulation. *Homo*
c. Responses of fetuses to double simultaneous stimulation. *Homo (Primates)* (in collaboration with Miss T. HUMPHREY)

HORI, R. M.Sc. — Biol. Inst., Fac. of Lib. Arts, Toyama Univ., TOYAMA, Japan

a. Electrical phenomena accompanying fertilization. *(Echinoidea), Oryzias latipes (Teleostei)*

HORN, E. C. B.S., A.M., Ph.D., Prof. — Dept of Zool., Duke Univ., DURHAM, N.C., U.S.A.

a. Qualitative and quantitative analysis of nucleoprotein during development. *Gallus gallus (Aves)*
b. Effects of nucleoprotein on embryonic development. *Gallus gallus (Aves)*

HÖRSTADIUS, S. F.I.I.E., Fil.Dr, Prof. — Zool. Inst., Uppsala Univ., UPPSALA, Sweden

a. Determination in the egg: Analysis of the gradients and the processes behind them. *(Echinoidea)*
b. Determination within the head. *Ambystoma (Urodela)*
c. The effect of various antimetabolites on embryonic development. *(Echinoidea)* (in collaboration with T. GUSTAFSON)

HUBER, W. D.Sc. — Muséum d'Histoire Naturelle, BERNE, Suisse

a. Développement de la tête. Etude morphologique et expérimentale de la forme encéphalique en rapport avec le crâne; courbures et redressement de la tête embryonnaire; position des yeux; analyse des races à forme encéphalique aberrante. *Gallus domesticus (Aves), Canis familiaris (Carnivora)*

HUBL, H. Dr rer.nat. — Zool. Inst. der Univ., Naturw. Fak., Röntgenring 10, WÜRZBURG, Deutschland

a. Einfluss des Colchicins auf die Regeneration. *Lumbricus, Tubifex*
b. Untersuchungen über die neurosekretorischen Zellen im Gehirn und deren Einfluss auf die Regeneration. *(Lumbricidae, Oligochaeta)*
c. Weitere Untersuchungen über die Beziehungen zwischen Nervensystem und Regeneration. *(Lumbricidae, Oligochaeta)*

HUGHES, A. F. W. M.A., Ph. D., Sc. D. — Anat. School, Univ. of Cambridge, CAMBRIDGE, England (U.K.)

a. U.V. microscopy of developing nervous system.

HUGHES—GLASTONE, Mrs S. F.D.S. — Anat. School, Univ. of Cambridge, CAMBRIDGE, England (U.K.)

a. Development and differentiation of teeth. *(Mammalia)*

HULTIN, J. M. T. Ph.D. — Wenner-Grens Inst. for exper. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

a. Nucleotide and carbohydrate metabolism of embryos in connection with determination. *(Echinoidea)*

HUMPHREY, R. R. F.I.I.E., A.M., Ph.D., Prof. — Dept of Anat., School of Med., Univ. of Buffalo, 3435 Main St, BUFFALO 14, N.Y., U.S.A.
a. Studies on spontaneous haploidy and polyploidy. *Ambystoma mexicanum (Urodela)* (in collaboration with G. FANKHAUSER)
b. The offspring of polyploids; their chromosome number, mortality, pathology etc. *Ambystoma mexicanum (Urodela)* (in collaboration with G. FANKHAUSER)
c. Genetic factors in metamorphosis. *Ambystoma mexicanum (Urodela)*
d. Modification of a lethal trait by the genotype of the mother. *Ambystoma mexicanum (Urodela)*
e. Modification in a lethal trait permitting survival of homozygotes which commonly die. *Ambystoma mexicanum (Urodela)*
f. Introduction of gene-marked germ cells from genetic males into females; sex of offspring derived from such of these germ cells as form ova. *Ambystoma mexicanum (Urodela)*
g. Androgenetic haploidy through refrigeration of freshly laid eggs. *Ambystoma mexicanum (Urodela)* (in collaboration with G. FANKHAUSER)

HUMPHREY, Miss T. M.D., Ph.D. — Dept of Anat., School of Med., Univ. of Pittsburgh, PITTSBURGH 13, Pa, U.S.A.
a. Continuation of studies on the trigeminal nerve in fetuses. Morphological study based on serially sectioned, pyridine silver impregnated embryos. Correlation of the anatomical findings on embryos with neurological observations and neurosurgical procedures. *Homo (Primates)*
b. Pancreatic developmental studies. *Homo (Primates)*
c. Responses of fetuses to double simultaneous stimulation. *Homo (Primates)* (in collaboration with D. HOOKER)

HUMPHRIES, A. A., Jr. Ph.D. — Dept of Biol., Emory Univ., ATLANTA, Ga., U.S.A.
a. Natural inhibition of meiosis in unfertilized amphibian oocytes. *Triturus viridescens (Urodela)*

HUNT, E.L. Ph.D., Prof. — Dept of Biol., Emory Univ., ATLANTA, Ga, U.S.A.
a. Studies on the distribution of certain radio-isotopes in the embryo. *Gallus (Aves)*
b. Studies on the distribution of radio-iodine. *(Amphibia)*

HUYGNARD, C. Dr en Méd., Dr ès Sci. — Lab. d'Embryol., Fac. de Méd., Rue des Sts Pères, PARIS VIe, France
a. Greffes intraoculaires de membres. *Mus rattus (Rodentia)*

HYDÉN, H. M.D. — Dept of Histol., Fac. of Med., Univ. of Gothenburg, 4:de Långgatan 7, GÖTEBORG C, Sweden
a. Nerve cell regeneration, cytochemical changes. *Oryctolagus cuniculus (Lagomorpha)*

HYLBOM, J. R. Fil.mag. — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden
a. Development of larvae including metamorphosis. *Philidium (Nemertini, Plathelminthes)*

ICHIKAWA, A. M.Sc., D.Sc., Prof. — Dept of Zool., Fac. of Sci., Hokkaido Univ., North 8, West 5, SAPPORO, Japan
a. Development and life-history of Japanese forms. *(Rhizocephalia, Crustacea)* (in collaboration with R. YANAGIMACHI)

ICHIKAWA, M. Ph.D., Prof. — Lab. of Embryol. and Exper. Morphol., Zool. Inst., Dept of Sci., Kyoto Univ., KYOTO, Japan
  a. Hormonal mechanism of metamorphosis. *Philosamia cynthia ricini, Bombyx mori, Luehdorfia japonica (Lepidoptera)* (in collaboration with Miss J. NISHIITSUTSUJI)

IKUSHIMA, N. — Lab. of Embryol. and Exper. Morphol., Zool. Inst., Dept of Sci., Kyoto Univ., KYOTO, Japan
  a. Redoxpotential of early embryo. *Triturus pyrrhogaster, Rhacophorus schlegelii (Amphibia)*
  b. Mechanism of the morphogenetic movement in the embryo. *Triturus pyrrhogaster, Hynobius nebulosus (Urodela)*

IMAIZUMI, T. — Zool. Inst., Fac. of Sci., Univ. of Kyoto, KYOTO, Japan
  a. Studies on the hereditary embryonic lethals. *Drosophila (Diptera)*

IMBRIANO, O. — Central de Investig., Minst. de Salud Públ. de la Nación, Bolívar 1128, BUENOS AIRES, Argentina

IMMERS, J. Ph.lic. — Wenner-Grens Inst. for exper. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden
  a. Carbohydrates in embryonic development. *(Echinoidea)*
    1. Changes in the contents of polysaccharide esterial sulphate. *Paracentrotus lividus.*
    2. Metabolism of monosaccharides (galactose, glucose, mannose, glucosamine, etc.) *Arbacia lixula, Echinus esculentus, Paracentrotus lividus,* etc.
    3. Biochemistry of fertilization membrane. *Echinus esculentus, Paracentrotus lividus, Strongylocentrotus droebachiensis,* etc.

INCE, Miss F. E. M.Sc. — Dept of Zool., Bedford Coll., Regent's Park, LONDON N.W. 1, England (U.K.)
  a. Development. *Arion (Pulmonata, Gastropoda)*

INGEN, Miss H. C. van M.B. — Anat.-Embryol. Lab. of the Univ., Fac. of Med., Wassenaarseweg, Boerhaavekwartier, LEIDEN, Holland
  a. Heart and vessels in congenital malformations. *Homo (Primates)* (in collaboration with H. A. SNELLEN, J. DANKMEIJER and Miss A. DEKKER)

ISHIDA, J. Dr — Zool. Inst., Fac. of Sci., Tokyo Univ., TOKYO, Japan
  a. Phosphorus metabolism in eggs. *Oryzias (Teleostei)*

ISHIKAWA, M. M.A. — Mar. Biol. Stat., Nagoya Univ., Sugashima-cho, TOBA, Mie-ken, Japan
  a. Physiological studies on fertilization and artificial parthenogenesis. *Hemicentrotus pulcherrimus, Pseudocentrotus depressus (Echinoidea)* (in collaboration with M. SUGIYAMA)

ISINGS, J. M.Sc. — Vezel Inst. T.N.O., Mijnbouwstraat 16a, DELFT, Holland

ISLAM, A. Ph.D. — Dept of Zool., Government Coll., LAHORE, Pakistan
  a. Experiments on regional determination. *Gallus domesticus (Aves)*
  b. The early embryology. *Bufo melanostictus, Rana tigrina (Anura)*

ITO, T. Dr Agr. — Sericult. Exper. Stat., Koenji, Suginami-ku, TOKYO, Japan
  a. Respiratory metabolism during metamorphosis. *Bombyx mori (Lepidoptera)*
  b. Histology and cytology of the integument. *Bombyx mori (Lepidoptera)*

IWASAWA, H. M.Sc. — Biol. Inst., Fac. of Sci., Niigata Univ., NIIGATA, Japan
  a. Effects of steroid hormones on gonad differentiation. *(Anura)*
  b. Modification of gonad differentiation by means of administration of thiourea. *(Anura)*

JACOBS, M. S. Ph.D. — Dept of Histol. and Embryol., Med. School, Queen's Univ., KINGSTON, Ont., Canada
  a. Skin growth, differentiation, transplantation. *Mus norvegicus (Rodentia)*

JACOBSON, A. A.B. — Dept of Biol. Sci., Stanford Univ., STANFORD, Cal., U.S.A.

JACOBSON, D. C.-O. Fil.mag. — Zool. Inst., Uppsala Univ., UPPSALA, Sweden
  a. Determination of the central nervous system. *Ambystoma (Urodela)*

JAFFE, L. F. B.S., Ph.D. — Hopkins Marine Station, PACIFIC GROVE, Cal., U.S.A.
  a. Investigation into mechanism whereby near-by eggs or adult determine polarity of egg. *Fucus furcatus (Fucales, Algae)*
  b. Investigation into conditions producing bipolar embryos. *Fucus furcatus (Fucales, Algae)*

JAFFEE, O. C. B.A., M.S., Ph.D. — Dept of Anat., Univ. of Arkansas, School of Med., LITTLE ROCK, Arkansas, U.S.A.
  a. Investigation on the developmental physiology of the pronephros, using histochemical and respiratory methods. *Rana pipiens (Anura)*

JAGER, B. de M.Sc., — Division of Fisheries, Beach Road, Sea Point, CAPE TOWN, South Africa
  a. Embryology. *Trachurus trachurus* Linn. *(Percomorphi, Neopterygii)*

JÄGERSTEN, K. G. M. Fil.Dr, Prof. — Zool. Inst., Uppsala Univ., UPPSALA, Sweden
  a. Larval development. *(Polychaeta)*

JANOSKY, L. A.B. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
  a. Histochemical localization of glycogen associated with the central nervous system in developmental behaviour. *Ambystoma maculatum (Urodela)* (in collaboration with Mrs E. L. WENGER and P. G. ROOFE)

JANSEN, J. M.D. — Anat. Inst., Univ. of Oslo, OSLO, Norway
  a. Histogenesis of the rhombencephalic nuclei. *Balaenoptera physalus (Cetacea)*

JIT, I. M.B., M.S., Ph.D. — Dept of Anat., Med. Coll. Amritsar, AMRITSAR, Punjab, India
  a. Histogenesis of vermiform appendix. *Homo (Primates)*
  b. Development of the ileo-colic valve and its frenula. *Homo (Primates)*
  c. Development of the splanchnic nerves. *(Homo (Primates)*
  d. Prenatal ossification of some bones. *Homo (Primates)*

JOHNELS, A. G. Phil. Dr — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden
  a. Development and morphology of the skeleton of the head. *(Dipnoi* and *Siluridae)*

JOHNEN, Miss A. G. Dr Phil. — Zool. Inst. der Univ. Köln, Kerpenerstrasse 13, KÖLN-LINDENTHAL, Deutschland
  a. Die Wirkungsspezifität abnormer Induktoren in der Entwicklung. *(Amphibia)*

b. Die Bedeutung des Zeitfaktors beim Induktionsvorgang. *Ambystoma, Triturus (Urodela)*

JOHNSON, B. H. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.

a. Analysis of the effects of adult or late embryonic tissue transplants on homologous tissues of the host embryo — Effects on synthesis of desoxyribosenucleic acid and proteins. *Gallus gallus (Aves)* (in collaboration with J. D. EBERT)

JOHNSON, F. R. M.D., B.Ch., B.A.O. — Dept of Anat., Fac. of Med., Univ. of Sheffield, SHEFFIELD, England (U.K.)

a. Functional histology of urinary passages of kidney. *(Mammalia)*
b. Histochemical studies of various tissues. *(Mammalia)*

JONES, B. M. D.Sc. — Dept of Zool., Univ. of Edinburgh, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

a. Embryonic endocrinology. *Locustana pardalina, Locustana migratoria (Orthoptera)*

JONES, W. E. B.Sc. — Marine Biol. Stat., Univ. Coll. of North Wales, BANGOR, N. Wales (U.K.)

a. Spore division and early development of thallus. *(Rhodophyceae; Gigartinales)*

JOST, A. D. Dr Sc., Prof. — Lab. de Biol. anim. du P.C.B., Fac. des Sci., Univ. de Paris, 7 Rue Cuvier, PARIS Ve, France

JURA, Cz. — Zakład Zool. Ogólnej, Inst. Zool., Uniw. we Wrocławiu, ul. Sienkiewicza 21, WROCŁAW, Poland

a. Development of the digestive system. *Phyllobius glaucus* Scop. *(Curculionidae, Coleoptera)*

JURAND, A. Dr Biol. — Biol. and Embryol. Inst., Med. Academy, KRAKOW, Poland

a. The influence of drugs of the nervous system on regeneration (sodium bromide; coffeine; strychnine nitrate). *Xenopus laevis* Daud. *(Anura)*
b. The phenomenon of spontaneous neoteny. *Xenopus laevis* Daud. *(Anura)*

KACEROVSKÝ, K. Dr — Inst. of Histol. and Embryol., Fac. of Med., Charles Univ., Karlovarská 48, PLZEŇ, Czechoslovakia

a. The development of the functional architecture of tendons. *Homo (Primates)*

KAGAN, B. M. Dr ès Sci. — Lab. d'Histophysiol., Coll. de France, Place Marcelin Berthelot, PARIS Ve, France

a. Culture d'organes (gonades, glandes endocrines).

KAJI, S. — Biol. Lab., Dept of Lit. and Sci., Kônan Univ., KOBE, Japan

a. Chemical influence upon the facet-forming faculty of the Bar eye. *Drosophila (Diptera)*

KAJISHIMA, T. M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan

a. Experimental analysis of the development of genetical characters. *Carassius auratus* (L) *(Teleostei)*

KÄLIN, J. Prof. — Zool.-vergl.-anat. Inst. der Univ., FREIBURG, Schweiz

KÄLLÉN, B. Docent — Tornblad-Inst. for comp. Embryol., Biskopsgatan 7, LUND, Sweden

KAMEL, A. B.Sc., M.Sc., Ph.D. — Fac. of Sci., Ain Shams Univ., Abassia, CAIRO, Egypt

a. The study of early developmental stages. *(Anura)*

b. The study of early developmental stages. *(Squamata, Reptilia)*

KAMER, J. C. v. d. Dr Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland

a. Normal development and cytology of the pineal region. *Crocodylus vulgaris (Reptilia)*

KANAGASUNTHERAM, R. M.B.B.S., Ph.D. — Dept of Anat., Fac. of Med., Univ. of Ceylon, Kynsey Rd, COLOMBO 8, Ceylon, India

a. Development of the Lesser sac. *Homo (Primates)*

b. Significance of the urethral plate. *Homo (Primates)*

KANE, R. E. S.B. — Dept of Biol., The Johns Hopkins Univ., Charles and 34th Sts, BALTIMORE 18, Md., U.S.A.

a. Physical and chemical studies on the proteins of the developing eye lens. *Gallus domesticus (Aves)*

KANOH, Y. M.S. — Dept of Zool., Fac. of Sci., Hokkaido Univ., North 8, West 5, SAPPORO, Japan

a. Chemical changes in eggs at fertilization. *Oncorhynchus keta (Teleostei)*

b. Sperm activation in the time of fertilization. *Clupea pallasii (Teleostei)*

c. Cytochemical investigation on development. *(Teleostei)* (in collaboration with T. S. YAMAMOTO)

KARASAKI, S. B.Sc. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan

a. The mechanism of dorsalization of the gastrula ectoderm through precytolytic treatment. *(Amphibia)*

b. The mechanism of formation of secondary tail by centrifugation. *(Amphibia)*

KARCZMAR, A. G. Ph.D. — Georgetown Univ., School of Med., WASHINGTON 7, D.C., Md, U.S.A.

KARTHAUSER, Miss H. M. B.Sc. — Dept of Embryol., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)

a. Study of cell relations in tissue culture. *Gallus domesticus (Aves)* (in collaboration with M. ABERCROMBIE and Miss J. E. SANTLER)

KATO, M. Ph.D. — Lab. of Embryol. and Exper. Morphol., Zool. Inst., Dept of Sci., Kyoto Univ., KYOTO, Japan

a. Mechanism of pigment formation. *Bombyx mori, Papilio xuthus hondoensis, Philosamia cynthia ricini (Lepidoptera)*

KATO, M. B.Sc. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan

a. The mechanism of Wolffian lens regeneration. *(Amphibia)*

KAWAKAMI, Mrs K. I. — Dept of Biol., Fac. of Sci., Kyushu Univ., FUKUOKA, Japan

a. Organizing substances in tissues. *(Mammalia)*

b. Effects of chemicals on development. *(Amphibia), Gallus, Mus (Amniota)*

KAWAKAMI, Mrs K. I. — Dept of Biol., Fac. of Sci., Kyushu Univ., FUKUOKA, Japan

a. Mechanism of regeneration. *Eisenia faetida (Oligochaeta)*

b. Effects of chemicals on development. *Gallus (Aves)*

c. Calcium metabolism and pearl-sac formation. *Pinctada martensii (Mollusca)*

KAWAMURA, K. M.A. — Embryol. Section, Dept of Biol., Tokyo Metropolitan Univ., Setagaya-ku, TOKYO, Japan
  a. Comparative study of spermatocyte division. *(Orthoptera)*

KAWAMURA, T. B.Sc., D.Sc., Prof. — Zool. Lab., Fac. of Sci., Hiroshima Univ., HIROSHIMA CITY, Japan
  a. Inter- and intraspecific hybridization. *(Amphibia)*
  b. Animal polyploidy. *(Amphibia)*

KELLER, L. A.B. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
  a. Histochemical patterns associated with the central nervous system in developmental behaviour. *Ambystoma maculatum (Urodela)* (in collaboration with Mrs E. L. WENGER and P. G. ROOFE)

KELLY, W. A. B.Sc. — Dept of Zool., Univ. Coll. of North Wales, BANGOR, Caernarvonshire, N. Wales (U.K.)
  a. Immunological relations of mother and young. *(Mammalia)*

KEMP, N. E. Ph.D. — Dept of Zool., Univ. of Michigan, ANN ARBOR, Mich., U.S.A.
  a. Use of radioactive isotopes as tracers in studies on the mechanism of synthesis of yolk. *Rana pipiens (Anura)*
  b. Morphogenesis and metabolism of larvae after excision of heart. *Rana pipiens* and *Ambystoma punctatum (Amphibia)*
  c. Electron microscopy of developing oocytes with special reference to the development of yolk (comparative study). *(Evertebrata* and *Vertebrata)*

KENT, D. E. A.B. — Dept of Zool., Univ. of North Carolina, CHAPEL HILL, N.C., U.S.A.
  a. Effects of radio-isotopes on mitosis. *Ambystoma maculatum (Urodela)* (in collaboration with D. P. COSTELLO and Miss C. HENLEY)

KIDO, T. — Zool. Inst., Fac. of Sc., Univ. of Kanazawa, KANAZAWA, Japan
  a. Regeneration and morphogenesis. *Planaria gonocephala (Turbellaria)*

KIEŁBÓWNA, Miss L. M.Ph. — Zakład Zool. Ogólnej, Inst. Zool., Uniw. we Wrocławiu, ul. Sienkiewicza 21, WROCŁAW, Poland
  a. The morphogenetical functions of the thyroid gland and hypophysis. *(Amphibia)*

KIENY, Miss M. A. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
  a. Recherches sur la morphogénèse et les besoins nutritifs des os de cartilage en culture in vitro. *Gallus gallus (Aves)*
  b. Problèmes relatifs aux causes de l'achondroplasie. *Gallus gallus*, var. Creeper *(Aves)*

KIHLSTRÖM, J.-E. Fil.lic. — Inst. for Zoophysiol., Uppsala Univ., UPPSALA, Sweden
  a. The physiology of ripening in spermatozoa. *(Mammalia)* (in collaboration with P. E. LINDAHL)
  b. The mechanism of agglutination of spermatozoa. *(Mammalia)* (in collaboration with P. E. LINDAHL)

KILLE, R. A. B.Sc., Ph.D. — Dept of Zool., Univ. of Edinburgh, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
  a. The first formation and further development of the sensory lines. *Salmo* spp. *(Teleostei)*

b. Fertilisation. *Lampetra (Cyclostomata)*

KINDAHL, Miss M. E. Phil. Dr — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden

a. The development of the teeth. *(Insectivora)*

KING, T. J. B.S., M.S., Ph.D. — Lankenau Hospital Research Inst. and Inst. for Cancer Research, Burholm Ave, Fox Chase, PHILADELPHIA 11, Pa, U.S.A.

a. The problem of nuclear differentiation, investigated by means of transplantation of embryonic cell nuclei into enucleated eggs. *Rana (Anura)* (in collaboration with R. W. BRIGGS)

KING, T. S. M.B., Ch.B. — Dept of Anat., Fac. of Med., Univ. of Sheffield, SHEFFIELD, England (U.K.)

a. Histological studies of the cardiac conducting system. *(Cetacea* and *Carnivora)*

KINOSITA, H. Dr Sci., Prof. — Zool. Inst., Fac. of Sci., Tokyo Univ., TOKYO, Japan

a. Electrophysiological studies. *Opalina ranarum (Ciliata)*

KIORTSIS, V. Dr ès Sci. — Inst. de Zool. et d'Anat. Comp., Univ. de Genève, GENÈVE, Suisse

a. Limb regeneration in the adult and larval animal. *(Urodela)*

b. Transplantation of the area immediately dorsal to the forelimb bud to the tail bud, in order to test the morphogenetic potentialities of this area. *Tr. cristatus* Laur. *(Urodela)*

c. Heteroplastic exchange transplantations between forelimb bud and the area immediately dorsal to it, in order to test the specificity of the forelimb inductor. *Tr. palmatus, Tr. cristatus, Tr. alpestris, Siredon mexicanum (Urodela)*

KIRRMANN, J. M. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. L'influence protectrice de la cystéamine contre l'action tératogène des rayons X.

KISSEN, A. T. — Dept of Zool. and Entomol., Coll. of Agric., Ohio State Univ., COLUMBUS 10, Ohio, U.S.A.

a. Embryology. *Mustela* spec. *(Carnivora)*

KLAPPER, C. E. A.B., Ph.D. — Univ. of Alabama, Med. Center, BIRMINGHAM 5, Alabama, U.S.A.

KLEISS, E. Dr.Med., Prof. — Dept of Anat., Fac. de Ci. Med., Universidad de Los Andes, MERIDA, Venezuela

a. Development of the tongue and other organs of the mouth; teratology. *Homo (Primates)*

KLOFT, W. Dr rer.nat. — Inst. für Angewandte Zool. der Univ., Naturw. Fak., Röntgenring 10, WÜRZBURG, Deutschland

KNIGHT, Miss P. F. A.B., M.S. — Dept of Zool., Univ. of Calif., LOS ANGELES 24, Cal., U.S.A.

a. Biological characteristics of the developing blood of the embryo. *Gallus domesticus (Aves)*

b. Macromolecular transfers from the yolk to the developing embryo. *Gallus domesticus (Aves)*

KNIGHT-JONES, E. W. D.Phil. — Marine Biol. Stat., Univ. Coll. of North Wales, BANGOR, N. Wales (U.K.)

a. Factors inducing metamorphosis in larvae of marine benthic invertebrates. *Spirorbis borealis (Polychaeta)*

KNOUFF, R. A. Ph.D., Prof. — Dept of Anat., Ohio State Univ., COLUMBUS 10, Ohio, U.S.A.

KOCHER, W. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz

a. Differentiation and regeneration of notochord. *Triton (Urodela)*

b. Experimentally evocated stop of differentiation in the notochord. *Triton alpestris (Urodela)*

KOECKE, U. Dr Phil. — Zool. Inst. der Univ. Köln, Kerpenerstrasse 13, KÖLN-LINDENTHAL, Deutschland

a. Krebsproblem als entwicklungsphysiologisches Problem. *Mus (Rodentia)*

b. Probleme der Entwicklungsphysiologie. *Columba (Aves)*

KOLLROS, J. J. Ph.D., Prof. — Dept of Zool., State Univ. of Iowa, IOWA CITY, Iowa, U.S.A.

a. Influence of peripheral and intracentral factors upon the growth of the midbrain. *Rana, Bufo, Pseudacris (Anura)*

b. Metamorphic effects of thyroxine in very low concentrations, and in higher concentrations applied locally. *Rana, Bufo, Pseudacris, Ambystoma (Amphibia)*

c. Regeneration of the midbrain in embryos and larvae. *Rana, Bufo, Pseudacris, Xenopus (Anura)*

d. Development of grafts of isolated segments of the C.N.S. *(Anura)*

e. Studies of mitosis in the developing C.N.S. *(Amphibia)*

KONIGSBERG, I. R. A.B., Ph.D. — Div. Chem. Embryol., Med. Center, Univ. of Colorado, 4200 East Ninth Ave, DENVER 20, Colo., U.S.A.

a. Ontogeny of hormonal correlation of embryonic metabolism. *Gallus*

b. Effect of hormones on muscle development. *Gallus domesticus (Aves)*

c. Chemistry of muscle differentiation. *Gallus (Aves)* (in collaboration with H. HERRMANN and A. J. SAMUELS)

KONIGSBERG, Mrs U. ROTHFELS Ph.D. — Div. Chem. Embryol., Med. Center, Univ. of Colorado, 4200 East Ninth Ave, DENVER 20, Colo., U.S.A.

a. Analysis of muscle tissue grown in vitro. *Homo (Primates)* (in collaboration with H. HERRMANN)

b. Study of developmental disturbances related to nutritional deficiencies investigated by application of anti-vitamins and anti-amino acids to the intact egg and to explants (somites). *(Aves)* (in collaboration with H. HERRMANN)

KONOPACKA, Mrs B. Dr, M.V.S.S., Prof. — Inst. of Histol. and Embryol., Veter. Fac., ul. Grochowska 272, WARSZAWA, Poland

a. Histochemical studies on the differentiation of epithelial cells in the intestine. *Sus (Mammalia)*

b. Alcaline phosphatase in early embryonic stages. *Sus (Mammalia)*

KOŚCIELSKI, B. M.Ph. — Zakład Zool. Ogólnej, Inst. Zool., Uniw. we Wrocławiu, ul. Sienkiewicza 21, WROCŁAW, Poland

a. Morphogenetical functions and histophysiology of the thyroid gland and hypophysis. *Triturus (Urodela)*

KRABBE, K. H. Dr Med. — Tornblad-Inst. of comp. Embryol., Biskopsgatan 7, LUND, Sweden (from Kommunehospitalet, COPENHAGEN, Denmark)

KRAIŃSKA, Mrs M. K. Mag. of Sci. — Inst. of Histol. and Embryol., Veter. Fac., ul. Grochowska 272, WARSZAWA, Poland
  a. Histochemical research on the development of salivary glands. *(Mammalia)*

KRAUSE, G. Dr Phil., Prof. — Zool. Inst. der Univ. Tübingen, Hölderlinstrasse 12, TÜBINGEN, Deutschland
  a. Regulationsfähigkeit der Keimanlage im Schnittversuch. *Tachycines asynamorus* Adelung *(Orthoptera)*
  b. Experimentell erzeugte Duplicitas cruciata. *Tachycines asynamorus* Adelung *(Orthoptera)*
  c. Analyse der Keimanlagenbildung. *Tachycines asynamorus* Adelung *(Orthoptera)*
  d. Embryonalentwicklung. *Notonecta glauca* L. *(Hemipteroidea)*

KRASSOWSKI, T. Dr — Inst. of Histol. and Embryol., Acad. of Med., ul. Chałubińskiego 5, WARSZAWA, Poland
  a. Le comportement de graisses dans le placenta. *Mus musculus (Rodentia), Homo (Primates)*

KRISZAT, G. Dr rer.nat., Dr Fil. — Wenner-Grens Inst. for exper. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden
  a. Experimental and physiological embryology. *Psammechinus miliaris, Echinus esculentus (Echinoidea)*

KROPP, B. N. A.M., Ph.D., Prof. — Dept of Histol. and Embryol., Med. School, Queen's Univ., KINGSTON, Ont., Canada
  a. Egg membranes. *Gallus domesticus (Aves)*
  b. Pancreas differentiation. *Gallus domesticus (Aves)*

KRUGELIS — MacRAE, Mrs. E. J. Ph.D. — Dept of Zool., Univ. of Cal., BERKELEY 4, Cal., U.S.A.
  a. Study of yolk during development with reference to electrophoretic patterns and amino acid composition. *Rana pipiens, Hyla regilla (Anura)*
  b. Study of incorporation of radio-active amino acids into proteins of developing embryos. *Rana pipiens (Anura)*

KRZYSZTOFOWICZ, Miss A. B.Sc. — Zool. Dept of the Jagellonian Univ., St Anne 6, KRAKOW, Poland
  a. Descriptive embryology. *(Curculionidae, Coleoptera)*

KUGLER, O. E. Ph.D. — Dept of Zool., Univ. of Illinois, URBANA, Ill., U.S.A.
  (no embryological work in progress)

KÜHN, A. Dr Phil. h.c., Dr rer.nat., Prof. — Max Planck-Inst. für Biol., Spemannstr. 34, TÜBINGEN, Deutschland
  a. Wundheilung und Regeneration. *Ephestia, Ptychopoda (Lepidoptera)*
  b. Entwicklung der Schuppen bei verschiedenen Mutanten und unter experimentellen Bedingungen. *Ephestia, Ptychopoda (Lepidoptera)*
  c. Genwirkung und Phaenocopien bei der Ausbildung von Zeichnungsmustern. *Ephestia, Ptychopoda (Lepidoptera)*
  d. Vergl. Untersuchungen der Furchung und Keimblätterbildung bei div. spec. *(Hydroidea)*
  e. Eiwachstum. *(Cladocera, Crustacea)*

KUHN, O. Dr rer.nat., Prof. — Zool. Inst. der Univ. Köln, Kerpenerstr. 13, KÖLN-LINDENTHAL, Deutschland
  a. Hormonwirkungen in der Morphogenese.
  b. Entwicklungsphysiologie der Feder. *(Aves)*

c. Wirkungsweise carcinogener und anderer Substanzen auf tierische Gewebe.
d. Regeneration und Wundheilung.

KUME, M. M.A. — Zool. Lab., Fac. of Sci., Ochanomizu Univ., TOKYO, Japan
a. Descriptive embryology. *Lingula (Brachiopoda), Phoronis australis (Phoronidea, Tentaculata), Tetya serica (Tetraxonida, Porifera)*

KUNO, M. M.A. — Sugashima Mar. Biol. Stat., Nagoya Univ., Sugashima-cho, TOBA, Mie-ken, Japan
a. Physiological studies on the cleavage of eggs. *Hemicentrotus pulcherrimus, Pseudocentrotus depressus (Echinoidea)*

KUTSKY, R. J. A.B., M.A. — Dept of Zool., Univ. of Calif., BERKELEY 4, Cal., U.S.A.

KUUSI, Miss T. K. Dr Phil. — Dept of Physiol., Zool. Lab., Fac. of Mathem. and Nat.Sci., Univ. of Helsinki, P. Rautatiekatu 13, HELSINKI, Finland
a. The chemical nature of specific inductive substances (isolated from liver and kidney of the guinea-pig), especially the inductive effects of protein and nucleic acid fractions of dead tissues. *Triturus (Urodela)*
b. Study on the process of induction caused by the bone marrow of the guinea-pig, marked with radioactive glycine. *Triturus (Urodela)*
c. The chemical nature of specific inductive substances (bone marrow of the guinea-pig); role of the proteins and nucleic acids. *Triturus (Urodela)*
d. The chemical nature of growth promoting substances (tissue extracts); role of the proteins and nucleic acids. *Mus rattus (Rodentia)*
e. Study on the effect of permeability in induction. *Triturus (Urodela)*
f. Inductions caused by spleen of guinea-pig and extracts and centrifugal fractions from the bone marrow of guinea-pig. *Triturus (Urodela)*

LA GRECA, M. Dr Nat.Sci. — Ist. di Zool. dell'Università di Napoli, Via Mezzocannone 8, NAPOLI, Italia
a. Istologia e citologia delle gonadi, con particolare riferimento alla vitellogenesi. *(Orthoptera)*
b. Rigenerazione, con particolare riferimento ai blastemi regenerativi. *(Polychaeta)*

LALLIER, R. A. Dr ès Sci. — Inst. de Biol. Physico-Chimique, 13 Rue Pierre Curie, PARIS Ve, France
a. Li et développement embryonnaire, étude de la biochimie des embryons lithinés. *Rana fusca, Ambystoma mexicanum (Amphibia)*
b. Etude de l'induction. *Triton taeniatus (Urodela)*
c. Etude de la détermination embryonnaire. *Paracentrotus lividus* and *Arbacia punctulata (Echinoidea), Rana fusca (Anura)*
d. Biochimie du déterminisme sexuel. *Bonellia viridis (Chaetopoda)*

LANDAUER, W. Ph.D., Prof. — Dept of Anim. Genet., Coll. of Agric., Univ. of Connecticut, Storrs Agric. Exper. Stat., STORRS, Conn., U.S.A.
a. Developmental studies on various mutants, such as "duplicate", "creeper" etc. *Gallus domesticus (Aves)*
b. A causal analysis of teratogenic action of insulin and other chemical compounds on developing embryos. *Gallus domesticus (Aves)*
c. Hereditary (lethal) cyclocephaly and cyclopia. *Gallus domesticus (Aves)*

- d. The nature and significance of phenocopies. *Gallus domesticus (Aves)*
- e. The genetic role of sporadic variations. *Gallus domesticus (Aves)*

LANGMAN, J. Dr Med. — Anat.-Embryol. Lab., Free Univ., Pr. Hendriklaan 27, AMSTERDAM Z, Holland

- a. Teratogenetic effect of thyreoectomised pregnant animals on the developing embryo. *Rattus norvegicus albinus (Rodentia)* (in collaboration with F. van FAASSEN)
- b. Influence of influenza-virus during pregnancy on the developing embryo. *Mus musculus (Rodentia)* (in collaboration with O. HOMMES)
- c. Study of abnormal development by injecting methyl-thiouracil into eggs. *Gallus domesticus (Aves)* (in collaboration with H. J. DOKTER)
- d. Serological experiments with embryonic explanted tissues. *Gallus domesticus (Aves)*
- e. Electrophoretic studies on the relation of the protein configuration of the serum of the mother and of the developing embryo. *Homo (Primates)* (in collaboration with F. BOUMAN)

LANINGA, Miss A.G. — Anat.-Embryol. Lab. der Rijks Univ., Oostersingel 69, GRONINGEN, Holland

- a. Development of the naso-lacrimal duct. *Mus musculus albinus (Rodentia)* (in collaboration with Miss J. H. REINDERS)

LANZAVECCHIA, G. Dr Biol.Sci. — Ist. di Zool. e Anat. Comp., Univ. di Milano, Via Celoria 10, MILANO, Italia

- a. Proteins from eggs. *(Aves)*
- b. Electron microscopy of the first differentiation. *(Aves)*

LARAMBERGUE, M. de Dr ès Sci., Prof. — Lab. de Zool., Fac. des Sci., POITIERS, Vienne, France

- a. Recherches sur le développement embryonnaire de l'appareil génital hermaphrodite. *(Gastropoda)*
- b. Differenciation des gamètes chez des formes hermaphrodites. *(Gastropoda)*
- c. Croissance et embryologie. *Achatina, Pila (Gastropoda)*

LATIMER, H. B. Ph.D., Prof. (Emer.) — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.

- a. A study of the relative proportions in both thickness and weight of the free walls of the right and left ventricles of the heart, at various weights and heart sizes. Various animals, including *Homo*
- b. A quantitative study of the prenatal increase in weight and also in percentage weight of the hypophysis, thyroid, thymus and suprarenal glands. *Canis (Carnivora)*
- c. A study of two races, to determine the variation in relative weights of the various organs and parts in a large and in a small form. *Oryctolagus cuniculus (Lagomorpha)*

LATTA, J. S. Ph.D. — Dept of Anat., Coll. of Med., Univ. of Nebraska, OMAHA 5, Nebraska, U.S.A.

- a. Effects of radiation on developing embryos. *Gallus (Aves)* (in collaboration with E. A. HOLYOKE and A. O. CHAPMAN)
- b. Experimental study of development of gonads. *Mus (Rodentia)* (in collaboration with E. A. HOLYOKE and A. O. CHAPMAN)

LAVARACK, J. O. M.B., B.S., Ph.D. — Anat. Dept, Univ. of Melbourne, CARLTON N. 3, Victoria, Australia

a. Histochemical investigation of early neural, notochordal and related tissues. *Gallus gallus (Aves)*

LEBLOND, C. P. M.D., Ph.D., Prof. — Dept of Anat., McGill Univ., MONTREAL, Quebec, Canada

a. Development of the thyroid gland. *(Vertebrata)*
b. The development of bones and teeth as shown on radioautographs with the help of radio-carbon-containing substances. *(Vertebrata)*

LECAMP, M. — Lab. d'Evolution des Etres organisés, Fac. des Sci. de Paris, 105 Boulevard Raspail, PARIS VIe, France

LEEUWENBERG, A. J. M. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland

a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

LEFEBVRES—BOISSELOT, Mrs J. Dr ès Sci. — Lab. d'Embryol., Fac. de Méd., 45 Rue des Sts Pères, PARIS VIe, France

a. Tératogénèse par carence en vitamines B. *Mus rattus (Rodentia)*
b. Développement anormal de l'encéphale. *Mus rattus (Rodentia)*
c. Développement du bec de lièvre. *Mus rattus (Rodentia)*

LEGHISSA, S. Ph.D. — Lab. di Istol. ed Embriol., Ist. di Anat. Comp., Via Belmeloro 8, BOLOGNA (103), Italia

a. Study of egg-cortex. Fusion of blastomeres. *(Ascidiae, Urochordata)*
b. Differentiation and morphology of nervous tissue. *(Coelenterata)*
c. Comparative neurology. *(Vertebrata)*
d. Effects of antimitotics on regeneration of peripheral nerves and on metamorphosis. *Rana, Bufo (Anura)* (in collaboration with P. PASQUINI)
e. Regeneration of peripheric nerves. *(Vertebrata)*
f. Action of vitamins (A, B group, C) on the histophysiology of endocrine glands during metamorphosis. *Rana (Anura)*

LEGRAND, J.-J. Dr ès Sci., Prof. — Lab. de Zool., Fac. des Sci., POITIERS, Vienne, France

a. Détermination et différenciation du sexe, castrations, greffes, corrélations humorales. Etude génétique de la monogénie. *(Oniscoidea, Isopoda, Crustacea)*
b. Développement des coaptations. *(Oniscoidea, Isopoda; Decapoda, Crustacea), (Insecta)*
c. Etude de la croissance. *(Oniscoidea, Isopoda, Crustacea)*
d. Modalités de la réproduction. *Platyarthrus schöblii (Oniscoidea, Isopoda)*
e. Analyse biométrique des populations de deux espèces soeurs dans le nord et le midi de la France. *Philoscia muscorum Scopoli* and *P. affinis* Verhoeff *(Oniscoidea, Isopoda, Crustacea)*

LEHMAN, H. E. M.A., Ph.D. — Dept of Zool., Univ. of North Carolina, CHAPEL HILL, N.C., U.S.A.

a. Studies on the behaviour, differentiation and metabolism of pigment cells as related to the establishment of specific pigment patterns of larvae and adults. *Ambystoma* and *Triturus (Urodela)*
b. Studies on the relation of external media and physical surfaces on the migration and differentiation of tissues in vitro. *Ambystoma* and *Triturus (Urodela)*
c. Transplantation of blastula nuclei into enucleated, uncleaved eggs. *Triton (Urodela)*

d. Hybridization studies on crosses. *Arbacia* x *Lytechinus (Echinoidea, Echinodermata)*

LEHMANN, F. E. F.I.I.E., Dr Phil., Prof. — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz

a. Allometrisches Wachstum. *(Amphibia)* (in Zusammenarbeit mit diversen Mitarbeitern)

b. Schwanzregeneration, normal und chemisch beeinflusst. *Xenopus (Anura)* (in Zusammenarbeit mit diversen Mitarbeitern)

c. Elektronenmikroskopische Struktur von tierischen Eiern. *Tubifex (Oligochaeta), (Echinodermata), (Ascidiae)*

LELIÈVRE, A. Prof. — Lab. d'Embryol., Fac. de Méd., 45 Rue des Sts Pères, PARIS VIe, France

a. Etude des anomalies de divers types. *Homo (Primates)*

LENDER, Th. Dr ès Sci., Prof. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Régénération des yeux. Rôle du système nerveux dans la régénération des yeux. *Polycelis nigra (Turbellaria)*

LEONE, V. M.D. — Ist. di Zool. e Anat. Comp., Univ. di Milano, Via Celoria 10, MILANO. Italia (from Ist. di Anat. umana norm. dell'Univ. di PALERMO)

a. Epidermis culture. *Homo (Primates)*

LEPORI, N. G. Lib.Doc., Prof. — Ist. di Zool. e Anat. comp. dell'Univ., Via A. Volta 4, PISA, Italia

a. Ovo- and spermatogenesis — chromosome cycle. *Polycelis tenuis*

b. Development of the gonads. *(Amphibia)*

LERMA, B. de Dr Sci. Nat.Fis., Prof. — Ist. di Zool., Univ. di Bari, BARI, Italia

a. Embriologia chimica e vitellogenesi, con particolare riferimento a sostanze flaviniche e pteriniche. *(Orthoptera)*

b. Determinismo delle metamorfosi. *(Insecta)*

LEROY, P. J. M. Dr ès Sci. — Lab. d'Histophysiol., Coll. de France, Place Marcelin Berthelot, PARIS Ve, France

a. Développement et physiologie des surrénales. *Gallus, Anas (Aves)*

LEUN, A. A. J. v. d. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland

a. Cytochemistry of Be during development. *Limnaea stagnalis (Gastropoda)*

LEUSSINK, J. A. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland

a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

LEVER, J. Dr Phil., Prof. — Zool. Inst., Free Calvinistic Univ., Rapenburgerstr. 128, AMSTERDAM C, Holland

a. Descriptive embryology, especially origin of thyroid gland. *(Labyrinthici, Teleostei)*

LEVER, J. D. M.A., M.D. — Anat. School, Univ. of Cambridge, CAMBRIDGE, England, (U.K.)

a. Development and electron microscopy of endocrine glands.

LEVI, G. L. F.I.I.E., Dr, Prof. (Emer.) — Inst. of human Anat., Fac. of Med., Corso Massimo d'Azeglio 52, TORINO, Italy

a. Recherches sur les transformations qui se produisent dans les organismes et dans les tissus cultivés in vitro pendant l'accroissement. *(Amniota)*
b. Recherches sur les caractères de la structure et des propriétés biologiques dans les tissus cultivés in vitro. *(Amniota)*

LEVI-MONTALCINI, Miss R. M.D. — Dept of Zool., Washington Univ., Lindell and Skinker Av., ST LOUIS 5, Mo., U.S.A.
a. Neuro-embryology. *Gallus domesticus (Aves)*
b. Effects of mouse sarcoma on nerve growth in vivo and in vitro.

LEWIS, W. H. F.I.I.E., Dr, Prof. (Emer.) — Wistar Inst. of Anat. and Biol., PHILADELPHIA 4, Pa, U.S.A.

LILLIE, R. S. Ph.D., Sc.D. — Physiol. Lab., Univ. of Chicago, CHICAGO 37, Ill., U.S.A.

LIMBORGH, J. van Med.Drs. — Anat.-Embryol. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Origin of the asymmetry of the gonads. *Anas boschas (Aves)*
b. Sex differentiation. *Anas boschas (Aves)*

LINDBERG, N. O. H. Phil.Dr — Wenner-Grens Inst. for experim. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

LINDAHL, P. E. F.I.I.E., Fil.Dr, Prof. — Inst. for Zoophysiol., Uppsala Univ., UPPSALA, Sweden
a. Large scale separation of macromeres, mesomeres and micromeres of the developing egg. *(Echinoidea)*
b. The physiology of ripening in spermatozoa. *(Mammalia)* (in collaboration with J. E. KIHLSTRÖM)
c. The mechanism of agglutination of spermatozoa. *(Mammalia)* (in collaboration with J. E. KIHLSTRÖM and Miss A. E. A. NILSSON)
d. The primary sex rate. *(Mammalia)* (in collaboration with Mrs. G. SUNDELL)

LINDH, N. O. Fil.Lic. — Zoophysiol. Inst., Univ. of Lund, LUND, Sweden
a. Nucleic acid gradients and metabolism during regeneration. *Euplanaria polychroa (Turbellaria)*
b. Mitotic gradients during regeneration. *Euplanaria polychroa (Turbellaria)*

LIPSCHUTZ, A. M.D., Prof. — Depto de Med. Exper. del Servicio Nacional de Salubridad, Av. Irarrázaval 849, SANTIAGO, Chile, S. America

LISON, L. Prof. — Fac. de Méd. de Ribeirão Preto, Univ. de São Paulo, SÃO PAULO, Brésil

LITTLE, C. C. Sc.D., Prof. — Jackson Memorial Lab., Box 558, BAR HARBOR, Me, U.S.A.

LIU, C. N. B.S., Ph.D. — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
a. Restoration of the intrinsic neurons following damage.
b. Fate of cells of Clarke's nucleus following axon section. *Felis domestica*
c. Intraspinal sprouting elicited from intact spinal sensory neurons by adjacent posterior root section. (in collaboration with W. W. CHAMBERS)

LODDER, Miss F. J. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland

a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

LOEWENTHAL, L. A. A.B., A.M., Ph.D. — Dept of Anim. Genet., Coll. of Agric., Univ. of Connecticut, Storrs Agric. Exper. Stat., STORRS, Conn., U.S.A.

a. Histological and histochemical study on embryos treated with thallium. *Gallus domesticus (Aves)*

LOOSLI, R. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz

a. Field organisation of imaginal discs. *Drosophila* spec. *(Diptera)*

LOPAŠOV, G. V. Prof. — Inst. of Animal Morphol. of the Acad. of Sci. of the U.S.S.R., B. Kalužskaja 33, MOSKOU, Russia

LOS, J. A. M.B. — Anat.-Embryol. Lab. of the Univ. of Leyden, Fac. of Med., Wassenaarseweg, Boerhaavekwartier, LEIDEN, Holland

a. Normal and abnormal development of the heart. *Homo* and other *Animalia* (in collaboration with J. DANKMEIJER)

LOSSEROY, J. — Lab. d'Histol., Dép. d'Embryol., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

LOVELACE, Miss L. R. B.S., M.S., Ph.D. — Dept of Biol., Univ. of South Carolina, COLUMBIA, S.C., U.S.A.

a. Precocious sperm entry, induced by alkaline, NaCl and $CaCl_2$, effects on cleavage. *Neanthes (=Nereis) limbata (Errantia, Polychaeta)*

b. Cytological changes following temperature shock on inseminated, uncleaved eggs. *Neanthes (= Nereis) limbata (Errantia, Polychaeta)*

c. Artificial parthenogenesis, cytological analysis. *Neanthes (= Nereis) limbata (Errantia, Polychaeta)*

d. Ultraviolet radiation, effects on cleavage mechanism. *Neanthes (= Nereis) limbata (Errantia, Polychaeta)*

LØVTRUP, S. Dr Phil. — Fac. of Med., Univ. of Gothenburg, 4:de Långgatan 7, GÖTEBORG, Sweden

a. Chemical differentiation during development at different temperatures. Enzymes and nucleic acids. *Ambystoma mexicanum (Urodela)*

b. Metabolism during development at different temperatures. *Ambystoma mexicanum (Urodela)*

LUCEY, E. C. A. B.Sc. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

a. Film of normal development. *Oryctolagus cuniculus (Lagomorpha)* (in collaboration with R. A. BEATTY)

LÜDTKE, H. Dr, Prof. — Zool. Inst. der Univ., Katharinenstr. 20, FREIBURG i. Brsg., Deutschland

LUDWIG, K. S. M.D. — Anat. Inst., Pestalozzistr. 20, BASEL, Schweiz

a. Ontogenesis of the vertebral column. *Mus norvegicus, Homo (Mammalia)*

b. Impregnation, segmentation and RNA/DNA. *Mus norvegicus*

LUGLI, Miss L. Dr — Ist. di Zool. e Anat. comp., Via Università 4, MODENA, Italia

a. Activity of sex hormones on the sex differentiation of gonads and Bidder's organs. *Bufo bufo (Anura)* (in collaboration with Miss M. L. ROMANI)

LÜSCHER, M. Dr Phil., a.o. Prof. — Abt. f. Zoophysiol., Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz

a. Differentiation of castes in termites, especially the determination of supplementary reproductives in primitive termites. *Kalotermes flavicollis* (Fabr.) *(Isoptera, Insecta)*

b. Descriptive and experimental study of the glands producing moulting and metamorphosis hormones. *Zootermopsis nevadensis* (Hagen) *(Isoptera, Insecta)*

LUTHER, W. Dr Phil., Prof. — Zool. Inst. der Technischen Hochschule, DARMSTADT, Deutschland

a. Regeneration (limb, skin). *(Urodela)*

b. Effects of ionizing radiations on regeneration. *(Amphibia,* var. spp.), *Mus rattus, Cricetus auratus (Rodentia)*

LUTZ, H. Dr ès Sci., Prof. — Lab. de Zool., Fac. des Sci., 1 Avenue Vercingétorix, CLERMONT-FERRAND, France

a. Développement du blastoderme pendant les premières heures de l'incubation. *Anas (Aves)*

b. La polyembryonie expérimentale; l'orientation des embryons. *(Aves)*

c. Polyembryonie expérimentale. *Salmonidae (Teleostei)* (en collaboration avec Mrs Y. LUTZ—OSTERTAG)

d. Formation de l'entoblaste. *(Aves)*

e. Action des ultra-sons sur l'embryon. *Gallus (Aves)* (en collaboration avec Mrs Y. LUTZ—OSTERTAG)

f. Culture in vitro du blastoderme. *(Aves)* (en collaboration avec Mrs Y. LUTZ—OSTERTAG)

LUTZ—OSTERTAG, Mrs Y. Dr ès Sci. — Lab. de Zool., Fac. des Sci., 1 Avenue Vercingétorix, CLERMONT-FERRAND, France

a. La genèse de l'asymmétrie du tractus génital et la régression des canaux de Müller par la méthode d'explantations. *Gallus (Aves)*

b. Rôle des hormones dans la différenciation primaire du sexe. *Gallus (Aves)* (en collaboration avec Et. WOLFF)

c. Polyembryonie expérimentale. *Salmonidae (Teleostei)* (en collaboration avec H. LUTZ)

d. Action des ultra-sons sur l'embryon. *Gallus (Aves)* (en collaboration avec H. LUTZ)

e. Culture in vitro du blastoderme. *(Aves)* (en collaboration avec H. LUTZ)

LYNE, A. G. B.Sc. — Div. of Anim. Health and Production, C.S.I.R.O., McMaster Anim. Health Lab., Parramatta Road, Glebe, SYDNEY, N.S.W., Australia (Guest-worker from C.S.I.R.O., Sheep Biol. Lab.)

a. Development of blood vessels in the skin. *Ovis (Artiodactyla)*

b. Growth of pouch young in captivity. *Trichosurus vulpecula, Perameles nasuta (Marsupialia)*

c. Growth of skin and hair in vivo and in vitro. *Trichosurus vulpecula, Perameles nasuta (Marsupialia)* (in collaboration with Miss M. H. HARDY)

d. Induction of hair follicle formation. *Mus musculus, Ovis (Mammalia)* (in collaboration with Miss M. H. HARDY)

e. Analysis of causes of pattern and density of hair follicles in skin. *Ovis (Artiodactyla)* (in collaboration with Miss M. H. HARDY)

LYON, Miss M. F. Ph.D. — Radiobiol. Res. Unit., Atomic Energy Res. Establ., HARWELL, Berkshire, England (U.K.)
  a. Developmental study of absence of otoliths. *Mus musculus (Rodentia)*
  b. Developmental study of the zigzag mutant. *Mus musculus (Rodentia)*
  c. Developmental study of ear mutants. *Mus musculus (Rodentia)*

MACMILLAN, E. W. Dr — Dept of Anat., Univ. of Liverpool, LIVERPOOL, England (U.K.)
  a. The importance of the epididymis and its vascularization for spermatogenesis. *(Mammalia)*
  b. The rate of transport of spermatozoa through the ductus epididymidis. *(Mammalia)*

MAKINO, S. — Dept of Zool., Fac. of Sci., Hokkaido Univ., SAPPORO, Japan
  a. Studies on cell and nuclear divisions in spermatocytes by phase-microscopy. *(Acrididae, Orthoptera)* (in collaboration with Y. H. NAKANISHI)

MALAMED, S. A.B., M.S., Ph.D. — Dept of Zool., State Univ. of Iowa, IOWA CITY, Iowa, U.S.A.
  a. Effect of high pressures of oxygen on development. *Rana pipiens (Anura)*
  b. Metabolism of hybrid embryos. *Rana (Anura)*

MALAN, Miss M. E. D.Sc. — Zool. Inst., Univ. of Stellenbosch, STELLENBOSCH, South Africa
  a. Gastrulation. *Testudo pardalis (Chelonia)*

MANARESI, Miss A. Dr Nat.Sci. — Ist. di Anat. Comp., Via Belmeloro 8, BOLOGNA (103), Italia
  a. Histogenesis of motor nuclei of cranial nerves. *(Vertebrata)*

MANCUSO, V. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
  a. The distribution of enzymes and other substances in the germ during development. *(Ascidiae)*
  b. Enzymes and other substances in embryonic development. *(Pulmonata, Gastropoda)*

MANDL, Miss A. M. B.Sc. (Lond.), Ph.D. (B'ham) — Dept of Anat., The Med. School, Birmingham Univ., Edgbaston, BIRMINGHAM 15, England (U.K.)

MANELLI, E. Dr Nat.Sci. — Ist. di Anat. Comp., Via Belmeloro 8, BOLOGNA (103), Italia
  a. Analysis of development of some proteins (antigen-reactions). *(Amphibia)*
  b. Researches on development of blood cells in relation with circulation (explantation and transplantation). *(Amphibia)*
  c. Origin and development of pronephros and Wolffian duct (explantation). *(Amphibia)*

MANGOLD, O. F.I.I.E., Dr, Prof. — Heiligenberg-Inst., (17b), HEILIGENBERG, Kreis Ueberlingen/Bodensee, Deutschland
  a. Einfluss äusserer Faktoren auf die Entwicklung. *(Urodela)*
  b. Untersuchungen zur causalen Morphologie des Kopfes. *(Urodela)*
  c. Untersuchungen über den determinierenden Einfluss des Entoderms auf das Mesoderm. *(Urodela)*

MANHOFF, Jr., L. M.D. — Rob't B. Green Hosp., SAN ANTONIO 7, Tex., U.S.A.

- a. Experimental production of anomalies of the fourth and sixth aortic arches by microelectrocoagulation in 3-day embryos. *Gallus (Aves)*

MANTON, S. M. F.R.S., M.A., Sc.D. — King's Coll., Strand, LONDON W.C.2, England (U.K.)

- a. Embryology. *Peripatopsis (Onychophora, Annelida)*
- b. General embryology. *Polydesmus (Diplopoda)*

MARCHAND, J. M. M.Sc., Ph.D. — Division of Fisheries, Beach Road, Sea Point, CAPE TOWN, South Africa
(no embryological work in progress)

MARCONNET, R. — Lab. d'Histol., Dép. d'Embryol., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

MARIN, G. Dr — Ist. di Zool. e Anat. comp., Fac. di Sci., Via Loredan 10, PADOVA, Italia

- a. Early development and sex differentiation of gonads. *Gallus (Aves)*

MARKERT, C. L. Ph.D. — Dept of Zool., Univ. of Michigan, ANN ARBOR, Mich., U.S.A.

- a. The role of genotype and embryological history in the utilization of specific substrates for melanogenesis. *Mus musculus (Rodentia)*
- b. Influence of cell population on melanoblast differentiation. *Mus musculus (Rodentia)*
- c. Changes in synthetic ability during cellular differentiation. *Gallus domesticus (Aves)* and *Mus musculus (Rodentia)*
- d. The effects of metabolite analogs on embryonic development. *Rana pipiens (Anura)*

MARSLAND, D. A. B.Sc., M.S., Ph.D. — Washington Square Coll., New York Univ., Washington Square, NEW YORK, N.Y., U.S.A.

- a. The mechanism of cell division (cytokinesis).
- b. Energetics of cytokinesis.
- c. Temperature-pressure studies on the furrowing strength of various marine eggs.

MARTIN, Miss B. A. M.A., Ph.D. — Dept of Biol., Brooklyn Coll., Bedford Ave and Ave H, BROOKLYN 10, N.Y., U.S.A.

- a. Cytology and embryology. *(Insecta)*

MARTIN, B. F. M.D., B.Ch., B.Sc. — Dept of Anat., Fac. of Med., Univ. of Sheffield, SHEFFIELD, England (U.K.)

- a. Histochemical studies. *(Mammalia)*

MARTINET, Mrs M. Dr ès Sci. — Lab. d'Embryol., Fac. de Méd., 45 Rue des Sts Pères, PARIS VIe, France

- a. Influence tératogène des infections. *Mus rattus (Rodentia)*
- b. Influence tératogène des intoxications. *Mus rattus (Rodentia)*
- c. Influence tératogène de l'hypervitaminose A. *Mus rattus (Rodentia)*

MASUDA, H. B.Sc. — Dept of Biol., Naniwa Univ., Sakai, OSAKA, Japan

- a. Induction in regenerating blastema. *Triturus pyrrhogaster (Urodela)*
- b. Regional differences of induced structure.

MASUI, Y. — Biol. Lab., Dept of Lit. and Sci., Kônan Univ., KOBE, Japan

- a. Influence of LiCl upon the inductive specificity of the organizer. *Triturus, Hynobius, Rana, Bufo (Amphibia)*

MATĚJKA, M. Dr — Inst. of Histol. and Embryol., Fac. of Med., Charles Univ., Karlovarská 48, PLZEŇ, Czechoslovakia

a. The morphogenesis of the genital organs form the standpoint of the evolutionary morphology.

MATHER, W. B. M.Sc. — Zool. Dept., Univ. of Queensland, George St, BRISBANE, Queensland, Australia
(no embryological work in progress)

MAWATARI, Sh. D.Sc. — Res. Inst. for Nat. Resources, Hyakunin-cho, 400, Shinjuku, TOKYO, Japan
a. Descriptive embryology, regeneration and metamorphosis. *Anasca* spec. *(Cheilostomate). Zoobotryon verticillata (Ctenostomata, Bryozoa)*

MAYER, G. Prof. Dr — Lab. d'Histol. et d'Embryol., Fac. de Méd., Univ. de Bordeaux, BORDEAUX, France

MAZIA, D. Ph.D. — Dept of Zool., Univ. of California, BERKELEY 4, Cal., U.S.A.

McALLISTER, Mrs R. A. C. — Anat. Dept, Charing Cross Hosp. Med. School, 62 Chandos Place, LONDON W.C. 2, England (U.K.)
a. The development of the genital tract. *Ovis aries (Artiodactyla)* (in collaboration with Miss J. R. W. ROSS)

McCAFFERTY, R. E. Ph.D. — Dept of Anat., School of Med., Univ. of Maryland, BALTIMORE 1, Md, U.S.A.
a. A physiological study of the amnion and placenta of the fetus. *Mus musculus (Rodentia)*

McCALLION, D. J. B.A., M.A., Ph.D. — Dept of Zool., Univ. of Toronto, TORONTO, Ont., Canada
a. The development of neural differentiation tendencies in the neurectoderm of the chick embryo just in front of the primitive node with special emphasis upon their regional character. *Gallus domesticus (Aves)*

McKAY, D. G. B.S., M.D. — Dept of Pathol., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
— Boston Lying-in Hospital, 221 Longwood Ave, BOSTON 15, Mass.
— Free Hospital for Women, 245 Pond Ave, BROOKLINE, Mass.
a. Histochemical studies on developing embryos. *Homo (Primates)* (in collaboration with A. T. HERTIG and Miss E. C. ADAMS)
b. Histochemical studies on abnormal trophoblast with special reference to hydatidiform mole and chorionepithelioma. *Homo (Primates)* (in collaboration with A. T. HERTIG, K. BENIRSCHKE, W. BARDAWIL and Miss E. C. ADAMS)

McKEEHAN, M. S. M.S., Ph.D. — Dept of Anat., School of Med., Univ. of Virginia, CHARLOTTESVILLE, Va, U.S.A.
a. Problems of growth and differentiation as studied in the developing lens. *Gallus domesticus (Aves)*

McKERROW, Miss M. J. Ph.D. — Dept of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, South Africa
a. Embryonic development of the mammary glands. *Elephantulus myurus jamesoni (Insectivora)*

McMINN, R. M. H. M.B., Ch.B. — Dept of Anat., Fac. of Med., Univ. of Sheffield, SHEFFIELD, England (U.K.)
a. Regeneration of bladder mucosa. *(Mammalia)*

McNUTT, C. W. A.B., M.S., Ph.D. — Dept of Anat., Med. Branch, Univ. of Texas, GALVESTON, Tex., U.S.A.
a. Analysis of morphological effects of the short ear gene. *Mus musculus (Rodentia)*

b. Genetic study of susceptibility and resistance to 4 % NaCl in drinking water. *Mus musculus* (NH and I.H.B.) *(Rodentia)*

McMURRAY, Miss V. M. A.B., M.S., Ph.D. — Dept of developm. Biol., Rockefeller Inst. for Med. Research, 66th St and York Ave, NEW YORK 21, N.Y., U.S.A.

MEDAWAR, P. B. M.A., D.Phil., F.R.S., Prof. — Dept of Zool. and Comp. Anat., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)

a. Development of capacity to respond to antigens. *Gallus domesticus, Anas platyrhynchus (Aves), Mus musculus, Rattus rattus, Cavia porcellus (Rodentia), Oryctolagus cuniculus (Lagomorpha), Bos taurus (Artiodactyla)*

MELLANBY, Sir Edward — National Inst. for Med. Research, Mill Hill, LONDON, England (U.K.)

MELNOTTE, P. J. — Lab. d'Histol., Dép. d'Embryol., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

MENSCHIK, Z. B.A., M.D., D.Sc., L.M.C.C., Prof. — Dept of Anat., Fac. of Med., Univ. of Ottawa, OTTAWA, Quebec, Canada.

a. Dietary factors in development. *Oryctolagus cuniculus (Lagomorpha)*

b. Vitamin E and unsaturated fatty acids in the development and maintenance of connective tissue. *Oryctolagus cuniculus (Lagomorpha)*

METTETAL, C. Dr ès Sci. — Lab. de Biol. Anim., Centre d'Etudes Sup. Sci., Avenue Biarnay, RABAT, Maroc

a. La régénération des membres, plus spécialement la détermination des parties du membre à l'intérieur du bourgeon de régénération. *(Urodela)*

METZ, C. B. Ph.D. — Dept of Zool., Florida State Univ., TALLAHASSEE, Florida, U.S.A.

MICHAEL, M. I. B.Sc., M.Sc. — Dept of Zool., Alexandria Univ., Moharram Bey, ALEXANDRIA, Egypt

a. The development of the nasal capsules. *Bufo regularis* (in collaboration with S. N. SEDRA)

MICHON, J. Dr ès Sci. — Lab. de Zool., Fac. des Sci., POITIERS, Vienne, France
(no embryological work in progress)

MICKIEWICZ, Miss Z. Physician — Inst. of Histol. & Embryol., Acad. of Med., Narutowicza 60, ŁODZ, Poland

MIFUNE, S. M.Sc. — Dept of Biol., Fac. of Sci., Kyushu Univ., FUKUOKA, Japan

a. Inductive action of fresh mouse tissues and the modification of it by various methods. *Triturus pyrrhogaster (Urodela)*

b. Natures of protein responsible for induction. *Triturus pyrrhogaster*

MILIN, R. Prof. — Inst. d'Histol. et d'Embryol., Fac. de Méd., SARAJEVO, Yougoslavie

a. La part de l'hypothalamus dans la croissance et métamorphose.

b. L'effet d'acide salicylique sur la métamorphose des têtards exposés au béryllium. *(Anura)*

MILLARD — BOKENHAM, Mrs. N. A. H. Ph.D. — Dept of Zool., Univ. of Cape Town, Rondebosch, CAPE TOWN, South Africa
(no embryological work in progress)

MILLER, J. A., Jr. A.B., Ph.D. — Dept of Anat., Emory Univ., ATLANTA, Ga., U.S.A.

a. Hypothermia and resistance to anoxia in the newborn. *Homo sapiens (Primates)*
b. Physiology of development and of regeneration. *Tubularia crocea (Hydroidea)*
c. The effects upon neonatal resistance to anoxia, of combining sedation with hypothermia. *Cavia (Rodentia)*

MINAMORI, S. B.Sc. — Zool. Lab., Fac. of Sc., Hiroshima Univ., HIROSHIMA CITY, Japan
a. Mechanisms of inviability and heterosis in development of reciprocal hybrids viewed from the angle of energy metabolism. *Misgurnus anguillicaudatus, Cobitis taenia striata (Eventognathi, Teleostei)*
b. Comparative physiology and biochemistry in development of local races, with special reference to enzyme production in relation to temperature. *Misgurnus anguillicaudatus, Cobitis taenia striata (Eventognathi, Teleostei)*

MINGANTI, A. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
a. Development and cytology of hybrids. *(Ascidiae, Urochordata)*
b. Chemical and physiological investigations on the jelly. *(Amphibia)*

MINTZ, Miss B. A.B., M.S., Ph.D. — Whitman Lab., Univ. of Chicago, 5700 S. Ingleside, CHICAGO 37, Ill., U.S.A.
a. Normal and experimental vasculogenesis in the oviducts. *Gallus domesticus (Aves)*
b. Embryogenesis of a germ cell sterility produced by a pleiotropic gene locus. *Mus musculus (Rodentia)*

MIROLLI, M. — Ist. di Zool. e Anat. comp. dell'Univ., Via A. Volta 4, PISA, Italia
a. Study of the oocytes. *Dugesia lugubris (Turbellaria)*

MITCHISON, J. M. M.A., Ph.D. — Dept of Zool., Univ. of Edinburgh, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
a. Growth of single cells. *Schizosaccharomyces pombe (Saccharomycetes)*

MIYAMORI-YAMAMOTO, Mrs H. M.Sc. — Lab. Exper. Embryol., Inst. of Polytechn., Osaka City Univ., Minami-Ogimati, Kita-ku, OSAKA, Japan
a. Effects of various proteinic and sterolic hormones upon the sex-differentiation of the gonad. *Hynobius nebulosus* (Schlegel) *(Urodela)*

MOGHE, M. A. Dr — Zool. Dept, Univ. of Poona, POONA, India
a. Studies on the placenta. *Viverra* spec. *(Carnivora)*
b. Studies on the possible function of the yolk sac gland. *(Megachiroptera)*
   1. relation with corpus luteum.
   2. nature of enzymes or secretions of the gland.
   3. extirpation.

MOFFETT, Jr., B. C. A.B. (Zool.), Ph.D. (Anat.) — Dept of Anat., Schools of Med. and Dent., Univ. of Alabama Med. Center, 620 South 20th St, BIRMINGHAM 5, Alabama, U.S.A.
a. Embryology of the temporomandibular joint. *Rattus norvegicus (Rodentia)*
b. Embryology of the temporomandibular joint. *Homo sapiens (Primates)*
c. Embryological development of synovial cavities. *Rattus norvegicus (Rodentia)*

MOLL, J. Dr Med. — Anat.-Embryol. Lab. der Rijks Univ., Oostersingel 69, GRONINGEN, Holland (no embryological work in progress)

MOMENT, G. B. A.B., Ph.D. — Goucher College, BALTIMORE 4, Md, U.S.A.

a. Relationship of method of healing and of the nervous system including neurosecretory tissue to posterior regeneration in earthworms. *Eisenia foetida (Oligochaeta)*

b. Influence of mass of tissue on growth in salamanders. *Ambystoma punctatum (Urodela)*

MONNÉ, L. Phil.Dr — Statens Veterinärmedic. Anstalt, Dept of Parasitol., STOCKHOLM 50, Sweden

a. Life cycles and developmental physiology of parasitic worms. *(Nematoda)*

MONET, Miss N. A. — Central de Investig., Minist. de Salud Públ. de la Nacion, Bolivar 1128, BUENOS AIRES, Argentina

MONTEROSSO, B. Prof. ord., Dir. — Ist. di Zool. e Anat. comp., Via Androne 25, CATANIA, Italia

MONROY, A. M.D., Prof. — Ist. di Anat. Comp., Univ. di Palermo, Via Archirafi 18, PALERMO, Italia

MOOG, Miss F. Ph.D., Assoc. Prof. — Dept of Zool., Washington Univ., Lindell and Skinker Av., ST LOUIS 5, Mo., U.S.A.

a. Development of enzyme systems in the embryo. *Gallus domesticus (Aves), (Mammalia)*

MOOKERJEE, S. M.Sc., Ph.D., Prof. — Dept of Zool., Presidency Coll., College St, CALCUTTA 12, India

a. Studies on the chemical basis of tissue formation. *Gallus (Aves), Rana, Bufo (Anura)*

b. Nucleus-cytoplasm interaction. *Amoeba (Protozoa)*

c. Cytochemical studies of the radiation action on embryonic cells. *Gallus (Aves)* (in collaboration with A. BOSE)

d. Mitotic counts in the lateral extension of the blastoderm. *Gallus (Aves)* (in collaboration with B. HAJRA)

e. Properties of the interstitial cells. *Hydra (Coelenterata)* (in collaboration with S. SANYAL)

MOORE, A. R. Ph.D., Prof. — Hopkins Marine Station, PACIFIC GROVE, Cal., U.S.A.

a. On the architecture of blastula and gastrula. *Dendraster excentricus (Clypeastroida, Echinoidea)*

b. On the structure of the pluteus. *Strongylocentrotus purpuratus (Centrechinoida, Echinoidea)*

MOORE, Mrs B. CLARK A.B., A.M., Ph.D. — Dept of Zool., Fac. of pure Sci., Columbia Univ., Broadway and 116th St, NEW YORK 27, N.Y., U.S.A.

a. Further studies of nucleo-proteins in development. Photometric analysis of desoxyribose nucleic acid in lethal diploid and androgenetic hybrid embryos. *Rana pipiens, Rana sylvatica (Anura)*

MOORE, J. A. A.B., M.A., Ph.D., Prof. — Dept of Zool., Fac. of pure Sci., Columbia Univ., Broadway and 116th St, NEW YORK 27, N.Y., U.S.A.

a. Gastrula ectoderm competence and dorsal lip potency in hybrid embryos tested by xenoplastic and heteroplastic transplantations to diploid hosts. *Rana pipiens* ♀ x *Rana clamitans* ♂ *(Anura)*

b. Embryology. Australian frogs *(Anura)*

MORGAN, Miss J. A. B.Sc. — Dept of Zool., Univ. of New England, ARMIDALE, N.S.W., Australia
  a. Regeneration and metamorphosis of cerci. *Blattella germanica* L. *(Dictyoptera, Insecta)* (in collaboration with A. STOCK and A. F. O'FARRELL)

MORI, H. M.A., Dr Agri. — Biol. Lab., Keio Univ., Hiyoshi, Kohoku, YOKOHAMA, Japan
  a. Insecticide action on eggs, larvae and adults. *(Insecta)*

MORI, Y. M.A., Prof. — Biol. Lab., Keio Univ., Hiyoshi, Kohoku, YOKOHAMA, Japan
  a. On the cause of disappearance of cutaneous melanophores of young animals. *Carassius auratus (Teleostei)*
  b. Morphological and chemical studies of pigment formation in various species. *(Pisces)*

MORICARD, R. Dr en Méd., Dr ès Sci. — Lab. d'Hormonol. et Cytol. expér., Ecole Pratique des Hautes Etudes, Univ. Hôpital Broca, 111 Rue L. M. Nordmann, PARIS XIIIe, France
  a. Recherches sur la maturation de l'ovocyte. *Oryctolagus cuniculus (Lagomorpha)*
  b. Recherches sur la fécondation in vitro de l'ovocyte. *Oryctolagus cuniculus (Lagomorpha)*
  c. Décoloration du dichlorophenol indophenol (DPIP) par l'ovocyte. Etude par micro-injection quantitative. *Mus musculus (Rodentia)* (en collaboration avec Miss M.M.C.S. GOTHIÉ et O. BAIOCCHI)
  d. Utilisation des traceurs dans l'étude des corrélations unissant les gonadotrophines, le liquide folliculaire et la maturation ovulaire. *Oryctolagus cuniculus (Lagomorpha)* (en collaboration avec Miss M. M. C. S. GOTHIÉ)
  e. Film 16 m.m. sur la fonction méiogène du liquide folliculaire. *Oryctolagus cuniculus (Lagomorpha)*
  f. Etude de la fécondation in vitro de l'ovocyte tubaire par des spermatozoides uterins (film en 16 m.m.)
  g. Etude de la fonction méiogène du liquide folliculaire; utilisation des traceurs. (en collaboration avec Miss M. M. C. S. GOTHIÉ)

MORLON, Miss C. — Lab. d'Embryol., Fac. de Med., 45 Rue des Sts Pères, PARIS VIe, France
  a. Retentissement des privations d'oxygène et intoxication par le CO sur des embryons. *Homo (Primates)* and *Mus rattus (Rodentia)*
  b. Anomalies du système nerveux. *Homo (Primates)*

MORRIS, I. G. B.Sc. — Agr. Res. Council Unit. of Embryol., Dept of Zool., Univ. Coll. of North Wales, BANGOR, Caernarvonshire, N. Wales (U.K.)
  a. Immunological relations of mother and young. *(Mammalia)*

MOSEN, Th. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
  a. Morphogénèse des gonades et du tractus génital *(Selachii, Teleostei)* (en collaboration avec J. VIVIEN et J. J. THIEBOLD)

MOSSMAN, H. W. B.S., M.S., Ph.D., Prof. — Dept of Anat., Univ. of Wisconsin, MADISON, Wis., U.S.A.
  a. Comparative morphology of the fetal membranes and reproductive tracts. *(Mammalia)*

MOTOMURA, I. Dr Sc., Prof. — Lab. of Embryol., Inst. of Biol., Tohoku (Imperial) Univ., SENDAI, Japan

MOURSI, A. A. B.Sc. — Dept of Zool., Alexandria Univ., Moharram Bey, ALEXANDRIA, Egypt with S. N. SEDRA)

a. The ontogenesis of the vertebral column. *Bufo regularis* (in collaboration

MUCHMORE, W. B. Ph.D. — Dept of Biol., Coll. of Arts and Sci., Univ. of Rochester, ROCHESTER 3, N.Y., U.S.A.

a. Early differentiation of trunk mesoderm. *Ambystoma maculatum*

MUIR, A. R. M.B., Ch.B., M.D. — Dept of Anat., Univ. of Edinburgh, Univ. New Buildings, Tevist Row, EDINBURGH, Scotland (U.K.)

a. Development of myocardium with special reference to the conducting tissue. *Rattus domesticus (Rodentia)*

MULLIGAN, W. J. M.D. — Free Hospital for Women, 245 Pond Ave, BROOKLINE, Mass., U.S.A.

a. Histochemical observations on early fertilized ova of less than 14 days age. *Homo (Primates)* (in collaboration with A. T. HERTIG, J. ROCK and Miss E. C. ADAMS)

MULNARD, J. M.D. — Lab. d'Anat. et d'Embryol., Fac. de Méd. de l'Univ., 97 Rue aux Laines, BRUXELLES, Belgique

a. Appearance of enzymes, mainly alcaline phosphatase, in the development. *(Rodentia)*

MUN, A. M. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.

a. A comparative study of the development of antigenic properties of G- and F-proteins in the early embryo. *Gallus gallus (Aves)*

b. Analysis of the effect of adult or late embryonic tissue transplants on homologous tissues of the host embryo. — Selective transfer of radioactivity from grafts to homologous host tissues. *Gallus gallus (Aves)* (in collaboration with J. D. EBERT)

MURATORI, G. Dr Med., o.Prof. — Ist. Anat., Univ. di Ferrara, Via Fossato di Mortara 66, FERRARA, Italia

a. Histochemical characteristics of the development of the joints in the normal embryo and in organ-cultures. *Gallus domesticus (Aves)*

b. Histochemical characteristics of the development of the arteries in the normal embryo and in organ-cultures. *Gallus domesticus (Aves)*

MURRAY, P. D. F. F.I.I.E., M.A., D.Sc. Prof. — Dept of Zool., Univ. of Sydney, SYDNEY, N.S.W., Australia

a. Development of the membrane bones of the skull. *(Anura, Lacertilia* and *Chelonia), Gallus domesticus (Aves)*

b. Development in vitro of the scleral bones. *Gallus domesticus (Aves)*

c. Development of secondary cartilage. *Gallus domesticus (Aves)*

NACE, G. W. A.B., M.A., Ph.D. — Dept of Zool., Duke Univ., DURHAM, N.C., U.S.A.

a. Serological and electrophoretic study of proteins of the embryo. *Rana pipiens (Anura)*

b. Study of development in the presence of antibodies against embryonic proteins. *Rana pipiens (Anura)*

NAKAMURA, O. D.Sc., Prof. — Lab. of Morphol., Osaka Lib. Arts Univ., IKEDA, Osaka-Pref., Japan

a. Map of presumptive regions and formative movements. *Triturus, Hynobius, Rana (Amphibia)*

b. Experimental analysis of development of tail. *Triturus, Rana (Amphibia)*
c. Formation of digestive tract. *Rana, Triturus, Hynobius (Amphibia)* (in collaboration with Y. TAHARA) *Rana (Amphibia)*
d. Experimental analysis of development of digestive organs. *Triturus,*

NAKANE, T. M.Sc. — Biol. Lab., Saikyo Univ., Shimogamo, KYOTO, Japan
a. Embryology. *(Coleoptera)*

NAKANISHI, Y. H. — Dept of Zool., Fac. of Sci., Hokkaido Univ., SAPPORO, Japan
a. Studies on cell and nuclear divisions in spermatocytes by phase-microscopy. *(Acrididae, Orthoptera)* (in collaboration with S. MAKINO)

NAKANO, E. M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan
a. Respiratory metabolism during early development. Experiments with Cartesian divers. *Oryzias latipes (Teleostei)*
b. Studies on the biochemistry of fertilization and cleavage, with special consideration to the role of SS-linkages. *Hemicentrotus pulcherrimus (Echinoidea)*
c. Mechanism of monospermy. *Hemicentrotus pulcherrimus (Echinoidea)*

NAKAYAMA, T. M.B., M.D. — Anat. Inst., Med. Fac., Nihon Univ., No. 724, Ooyaguchi-machi, Itabashi-ku, TOKYO, Japan
a. Developmental changes in the innervation of the muscles. The distribution of the nerve fibres in muscles, especially socalled double-innervated muscles, in fetus, newborn and infant. *Homo (Primates)*
b. Origin of the muscles of the extremities. Researches on the relation between the myotome cells and the primordia of muscles of the extremities in early stages of development. *Homo (Primates)*

NAPP, M. B.A., M.Sc. — Long Island Univ., 385 Flatbush Avenue Extension, BROOKLYN, N.Y., U.S.A.
a. Development of epidermal melanophores. *Ambystoma punctatum (Urodela)*

NEEDHAM, A. E. M.A., B.Sc. — Dept of Zool. and Comp. Anat., The Univ. Museum, OXFORD, England (U.K.)
a. Nitrogen excretion during regeneration. *Carcinus moenas* Leach *(Decapoda, Crustacea)*
b. Nitrogen excretion during wound-healing. *Lumbricus terrestris (Oligochaeta)*

NEEDHAM, J. F.I.I.E., Dr, Prof. — Gonville and Cains Coll., CAMBRIDGE, England (U.K.)

NEF, W. — Abt. f. Genet., Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz
a. Entwicklungsphysiologie einer Flügel-Borsten-Mutante. *Drosophila (Diptera)* (in Zusammenarbeit mit S. ROSIN)

NEIGER, M. Dr Méd. — Inst. d'Anat., Fac. de Méd., Univ. de Genève, 20 Rue Ecole de Méd., GENÈVE, Suisse
a. Développement du contenu de la cavité orbitaire.

NEW, D. A. T. B.A., Ph.D. — Dept of Embryol., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
a. Blastoderm expansion. *Gallus domesticus (Aves)*
b. Perfusion in vitro of pregnant uterus. *Rattus norvegicus (Mammalia)*

NEWBY, W. W. Ph.D. (Stanford Univ., 1939) — Dept of Genetics and Cytology, Div. of Biol., Univ. of Utah, SALT LAKE CITY, Utah, U.S.A.

NEWSTEAD, J. D. B.A. — Dept. of Zool., Univ. of British Columbia, VANCOUVER, B.C., Canada
a. Descriptive analysis of kidney development. *Onchorhynchus gorbuscha (Teleostei)*

NEWTH, D. R. B.Sc., Ph.D. — Dept of Zool. and Comp. Anat., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
a. Regeneration of defective organs. *(Amphibia)*

NEWTON, B. L. B.A., M.D.C.M. — Dept of Pathol., Coll. of Med., Baylor Univ., 1200 M.D. Anderson Blvd, Texas Med. Center, HOUSTON 5, Tex., U.S.A.
(no embryological work in progress)

NICOLA, Miss M. DE Dr Sci. — Centro di Studio per la Biol. del C.N.R., Stazione Zool., NAPOLI, Italia

NICHOLAS, J. S. F.I.I.E., Ph.D., Prof. — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.
a. Studies on the egg. *Mus norvegicus (Rodentia)*
b. The development of actomyosin in developing muscle. *Mus norvegicus (Rodentia)*
c. The interaction of the roof of the archenteron upon the nervous system. *Ambystoma punctatum (Urodela)*
d. Determination times of tissues and organs. *Mus norvegicus (Rodentia)*
e. Factors underlying embryonic form.
f. Development of nucleic acids in embryos. *(Amphibia), Mus norvegicus (Rodentia)*
g. Development of acidphosphatase. *(Amphibia), Mus norvegicus (Rodentia)*
h. Centrifugation and transplantation of eggs. *Mus norvegicus (Rodentia)*
j. Culture of eggs and embryos. *Mus norvegicus (Rodentia)*

NIESSING, K. Dr Med., o.Prof. — Anat. Inst. der Univ., Robert Kochstr. 6, MARBURG/Lahn, Deutschland
a. Entwicklung der autonomen Ganglien. *Xenopus (Anura)*

NIEUWKOOP, P. D. Phil.Dr — Hubrecht Lab., Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland
a. Analysis of the neural induction and subsequent organization of the central nervous system (to be continued). Interaction of embryonic fields. Various species *(Urodela)*
b. Analysis of the neural induction and subsequent organization of the central nervous system (to be continued). *Gallus domesticus (Aves)*
c. Causal analysis of the development of the neural crest (Subject of second international team-work, Hubrecht Lab., I—VII, 1956). Various species *(Urodela)*

NIJENHUIS, E. D. M.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Analysis of the phase specificity in the sensitivity of the egg to Li-ions. *Limnaea stagnalis (Gastropoda)*
b. Autoradiographic localization of kations in eggs. *Limnaea stagnalis (Gastropoda)*

NILSSON, Miss A. E. A. Fil.mag. — Inst. for Zoophysiol., Uppsala Univ., UPPSALA, Sweden

a. The mechanism of agglutination of spermatozoa. *(Mammalia)* (in collaboration with P. E. LINDAHL)

NISHIITSUTSUJI, Miss J. — Lab. of Embryol. and Exper. Morphol., Zool. Inst., Dept of Sci., Kyoto Univ., KYOTO, Japan
a. Hormonal mechanism of metamorphosis. *Bombyx mori, Luehdorfia japonica, Philosamia cynthia ricini (Lepidoptera)* (in collaboration with M. ICHIKAWA)

NIU, M. C. Dr — Rockefeller Inst. for Med. Research, 66th St and York Ave, NEW YORK 21, N.Y., U.S.A.
a. Studies on embryonic induction, using a new technique:
1. Biological aspects; the mechanism of induction and additional evidence for homeogenetic induction.
2. Biochemical aspects; experiments concerning the identification of the inductor substances.

NOBILI, R. — Ist. di Zool. e Anat. comp. dell'Univ., Via A. Volta 4, PISA, Italia
a. Development of the gonads in hybrids. *(Urodela)*

NOWAKÓWNA, Miss J. M.Ph. — Zakład Zool. Ogólnej, Inst. Zool., Uniw.we Wrocławiu, ul. Sienkiewicza 21, WROCŁAW, Poland
a. The morphogenetical functions of the thyroid gland and hypophysis. *(Amphibia, Reptilia, Aves)*
b. Pigmentation and the endocrine glands. *(Amphibia)*

NÜESCH, H. D.Sc., P.D. — Zool. Anstalt der Univ., Rheinsprung 9, BASEL, Schweiz
a. Einfluss des Nervensystems auf die Entwicklung anderer Organe. *Telea polyphemus (Saturniidae, Lepidoptera)*
b. Entwicklung der imaginalen Muskeln. *Telea polyphemus (Saturniidae, Lepidoptera) doptera)*
c. Entwicklung des Nervensystems. *Telea polyphemus (Saturniidae, Lepi-*

NUMANOI, H. P.H.D. — Biol. Inst., Coll. of gen. Education, Univ. of Tokyo, TOKYO, Japan
a. Biochemical study of fertilization substances, with special reference to the physiology of polyphenol sulfate. *(Echinoidea)*

NYHOLM, K. G. Fil.Dr — Zool. Inst., Uppsala Univ., UPPSALA, Sweden
a. Study of the development. *(Echinoderidae, Aschelminthes)*
b. Study of the life-history. *(Rhizopoda monothalamia)*

O'BRIEN, B. R. A. B.Sc., Ph.D. — Dept of Histol. and Embryol., Univ. of Sydney, SYDNEY, N.S.W., Australia
a. Enzymatic pattern in normal and regenerating tissue in relation to capacity for, and rate of regeneration. *(Annelida)*

O'BRIEN, J. P. Ph.D. — Dept of Biol., Marquette Univ., 1217 West Wisconsin Ave, MILWAUKEE 3, Wis., U.S.A.
a. Regression of larval and adult limb and tail following exposure to X-rays or denervation. *Triturus viridescens* and *Ambystoma punctatum*
b. Spindle-cell sarcoma of adult animals. *Triturus viridescens* and *Ambystoma punctatum (Urodela)*
c. Radiosensitivity in relation to temperature prevailing during exposure. *Rana catesbiana, Rana pipiens, Triturus viridescens (Amphibia); Mus rattus, Lepus americanus (Rodentia)*

O'CONNOR, R. J. M.D., D.T.M. — Westminster Med. School, Horseferry Rd, LONDON S.W. 1, England (U.K.)

a. Growth and regeneration of alimentary mucosa. *(Mammalia)*
b. Effect of radiation on embryological development. *(Amphibia; Aves)*

ODOR, Miss D. L. M.S., Ph.D. — School of Med., Univ. of Washington, SEATTLE 5, Wash., U.S.A.
a. First and second maturation divisions and fertilization stages of ova. *Rattus norvegicus albinus (Rodentia)*

O'FARRELL, A. F. B.Sc., ARCS — Dept of Zool., Univ. of New England, ARMIDALE, N.S.W., Australia
a. Regeneration and the endocrine system. *Blattella germanica (Dictyoptera, Insecta)* (in collaboration with A. STOCK and Miss J. MORGAN)

OIKAWA, Miss I. B.Sc. — Fac. of Education, Kōchi Univ., KOCHI, Japan
— Research Inst. of Applied Electricity, Hokkaido Univ., SAPPORO, Japan
a. Membrane potential of the egg. *Salmo (Teleostei)*
b. Relation between stage of development, structure and phosphorus metabolism. *Rana nigromaculata (Anura)*

OKA, H. Ph.D. (Tokyo), Prof. — Inst. of Zool., Univ. of Education, Otsuka-Kubomachi 24, Bunkyoku, TOKYO, Japan

OKADA, K. D.Sc., Prof. — Biol. Inst., Gakugei Fac., Tokushima Univ., TOKUSHIMA, Japan
a. Experimental studies on the animalization and vegetalization of gastrulae. *Hemicentrotus pulcherrimus (Echinoidea)*
b. Morphological studies on the cortical reactions of artificially inseminated eggs. *Nereis japonica (Polychaeta)*

OKADA, T. S. — Lab. of Embryol. and Exper. Morphol., Zool. Inst., Dept of Sci., Kyoto Univ., KYOTO, Japan
a. Developmental mechanisms of the differentiation of the presumptive endoderm. *Triturus pyrrhogaster, Hynobius nebulosus (Urodela)*
b. Regional differences of induced structure. *(Amphibia)*

OKADA, Y. K. F.I.I.E., M.J.A., Dr, Prof. — Nat . Mus. of Nat. Sci., Ueno-Park, Daito-ku, TOKYO, Japan
a. Normal table of the development. *Balaenoptera physalus, Megaptera novaeangliae, Stenella caeruleo-albus (Cetacea)*
b. Sex and sex-reversal. *Sparus longispinis, Pagrosomus unicolor, Oryzias latipes,* etc. *(Teleostei)*

OKAZAKI, Miss K. — Embryol. Section, Dept of Biol., Tokyo Metropolitan Univ., Setagaya-ku, TOKYO, Japan
a. A study of skeleton formation. *(Echinodermata)*
b. Mechanism of gastrulation. *(Echinoidea)*

OKAZAKI, R. M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan *(Amphibia)*
a. Critical studies on the inducing capacity of the devitalized organizer.
b. Biochemical and biophysical studies of cleavage. *(Echinodermata, Amphibia)*

OKSCHE, A. A. Dr Med. — Anat. Inst. der Univ., Robert Kochstr. 6, MARBURG/Lahn, Deutschland
a. Änderungen des Kaulquappen-Wachstums nach beiderseitiger Augen-Extirpation. Es soll hierbei die Rolle des Hypophysen-Zwischenhirn-Systems und der Epiphyse untersucht werden. *Xenopus laevis (Anura)*

b. Die Feinstruktur der Sinneszellen des Organon frontale bei qualitativ und quantitativ modifiziertem Lichtreiz. Verhalten der spezifischen, mit Eisen-Haemotaxylin färbbaren Zellstrukturen während des Individualzyklus. *Bufo vulgaris* (Larven), *Rana temporaria, Xenopus laevis (Anura)*

c. Individualzyklische Entwicklung der Sekretion im Subcommissural-organ. Entwicklung der Nerven- und Gefässverbindungen der Organe des Zwischenhirndachs. Klärung der Funktion. *(Vertebrata)*

OLIVER, C. P. — Dept of Zool., Univ. of Texas, AUSTIN 12, Texas, U.S.A.
(no embryological work in progress)

OLIVER—YATES, Mrs H. B. B.Sc. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

a. Study of developing embryos using electronmicrographs of ultra-thin sections. *(Amphibia)* (in collaboration with G. G. SELMAN)

b. Differentiation in tissue culture (in collaboration with Mrs R. M. CLAYTON—FREEDMAN and M. FELDMAN)

OLIVIER, G. Prof. Agrégé — Lab. des Travaux Anat., Fac. de Méd. Nouvelle, 45 Rue des Sts Pères, PARIS VIe, France

a. Développement du plexus brachial. *Homo (Primates)* (en collaboration avec R. FENART)

OLIVO, O. M. Med. Dr, Ord. Prof. — Ist. di Istol. e Fisiol. gen., Fac. di Med., Via Belmeloro 8, BOLOGNA, Italia

OLSSON, R. Fil.mag. — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden

a. Development of nuclei and fibres in the brain. *Polypterus (Brachiopterygii)*

b. Development of Reissner's fibre and the infundibular and subcommissural organ. *Branchiostoma (Cephalochordata), Homo (Primates)*

c. Development of the epithalamus. *(Brachiopterygii)*

OMODEO, P. Dr Sci. — Ist. di Biol. e Zool. gen., Fac. di Med., Piazza S. Agostino 4, SIENA, Italia
(no embryological work in progress)

OPPENHEIMER, Miss J. M. B.A., Ph.D. — Dept of Biol., Bryn Mawr Coll., BRYN MAWR, Pa, U.S.A.

a. Experimental analysis of regional determination within the brain. *Fundulus heteroclitus (Teleostei)*

b. Autonomous movements of endoderm. *Fundulus heteroclitus (Teleostei)*

ORSKA, Miss J. Ph.D. — Zakład. Anat. Porównawczej, Inst. Zool. Uniw., ul. Sienkiewicza 21, WROCŁAW, Poland

a. Development of the vertebral column centra. *(Salmonidae, Teleostei)*

b. Influence of temperature on development of axial skeleton. *(Teleostei)*

ORSINI, Mrs M. C. WARD Ph.D., B.A. — Dept of Anat., Univ. of Wisconsin, MADISON, Wis., U.S.A.

a. Fetal membranes, giant cells, and pregnancy changes in uterine vessels. *Cricetus auratus (Rodentia)*

ORTOLANI, Miss G. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia

a. Structure of the egg cortex. (Marine *Evertebrata)*

ORTS LLORCA, F. Prof. — Lab. de Anat. y Embryol., Fac. de Med., Ciudad Univ., MADRID, Spain

a. Embryology of the lungs. *(Mammalia)*

b. Experimental embryology. *Gallus domesticus (Aves)*

OSAWA, S. M.A. (Rigakushi) — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan

— Rockefeller Inst. for Med. Res., 66th St, York Ave, NEW YORK 21, N.Y., U.S.A.

OVERTON, Mrs J. Dr — Dept of Zool., Univ. of Chicago, CHICAGO 37, Ill., U.S.A.

OZBURN, R. H. Prof. — Dept of Entomol. and Zool., Ontario Agricultural Coll., GUELPH, Ont., Canada

(no embryological work in progress)

PACKER, A. D. — Dept of Anat., Univ. of Adelaide, ADELAIDE, S. Australia

a. The development and structure of heart valves, based on the examination of serial sections through valves from different age groups of embryos and foetuses. *Homo (Primates)*

b. The aetiology of fatal congenital abnormalities, based on a questionnaire and interviews of parents. *Homo (Primates)*

c. The experimental production of congenital abnormalities, using various methods including trypan blue, anoxia and Roentgen rays. *Rattus (Rodentia)*

PADOA, E. Dr, Prof. — Ist. di Zool., Fac. di Sci., Via Romana 17, FIRENZE, Italia

(no embryological work in progress)

PADYKULA, Miss H. A. B.S., M.A., Ph.D. — Dept of Anat., Harvard Med. School, 25 Shattuck Str., BOSTON 15, Mass., U.S.A.

a. Histochemical studies on the liver of the embryonic and post-natal animal to determine the onset of functional activities. *Rattus norvegicus (Rodentia)*

b. A histochemical study of glycogen depletion in the early post-natal liver. *Rattus norvegicus (Rodentia)*

PAI, S. F.I.I.E., Dr rer. nat. — Lab. of Developm. Physiol., Inst. of Exper. Biol., Acad. Sinica, 865 Chang Ning Rd, SHANGHAI, China

PALAZZO, Miss F. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia

a. Cytochemical studies on the devolopment. *(Annelida)*

PANTELOURIS, E. M. B.Sc. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

a. Ovary transplants for detection of host effects on growth, and of transfer of specific molecules. *Drosophila (Diptera)*

b. Transplantation of nuclei and cytoplasmic inclusions. *Triton (Urodela)* (in collaboration with C. H. WADDINGTON)

PAPI, F. Lib.Doc., Prof. — Ist. di Zool. e Anat. comp. dell'Univ., Via A Volta 4, PISA, Italia

a. Reproduction and cytology. *(Rhabdocoela, Turbellaria)*

PARRANT, M. Dr en Méd. — Lab. d'Embryol., Fac. de Méd., 45 Rue des Sts Pères, PARIS VIe, France

a. Développement du système dentaire. *Homo (Primates)*

PASQUINI, P. Ph.D., Prof. — Ist. di Anat. Comp., Via Belmeloro 8, BOLOGNA (103), Italia
- a. Effects of antimitotics on early development and on lens-regeneration. *Rana esculenta, Triton* and *Ambystoma (Amphibia)* (in collaboration with Miss I. DE CESARE)
- b. Effects of antimitotics on the regeneration of peripheral nerves. *(Urodela* and *Anura)* (in collaboration with S. LEGHISSA)
- c. Effects of low temperature on early development. *(Amphibia)* (in collaboration with L. RAUNICH)

PASTEELS, J. F.I.I.E., M.D., Prof. — Lab. d'Anat. et d'Embryol., Fac. de Méd. de l'Univ., 97 Rue aux Laines, BRUXELLES, Belgique
- a. General survey of development. *Chrysemis, Pseudemys, Chelone (Chelonia), Chamaeleo, Mabuya (Sauria)*
- b. Cytochemical observations on the first developmental stages. *(Amphibia)* (in collaboration with J. BRACHET)
- c. Cytochemical observations on first development. *(Mollusca; Echinoidea)*

PATTEN, B. M. Ph.D., Prof. — Dept of Anat., Med. School, Univ. of Michigan, 2500 East Med. Bldg, ANN ARBOR, Mich., U.S.A.

PEET, Miss H. M. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
- a. Polarization microscopy of shell gland. *Limnaea stagnalis (Gastropoda)*
- b. Influence of Beryllium on birefringence of shell gland cells. *Limnaca stagnalis (Gastropoda)*

PEHRSON, G. T. Dr Phil., Prof. — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden
- a. Development and morphology of the skull and of the lateralis system. *(Osteoglossidae* and *Characinidae, Teleostei)*
- b. Ontogeny of the skull. *Polypterus (Crossopterygii)*

PENFOLD, R. A.B. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
- a. Reconstruction of brain and cranial nerves of the first 4 Coghill stages. *Ambystoma maculatum (Urodela)* (in collaboration with P. G. ROOFE)

PENTZ, Miss K. M.Sc. — Zool. Inst., Univ. of Stellenbosch, STELLENBOSCH, South Africa
- a. Ontogenesis of the skull. *Hynobius fuscus (Urodela)*

PERCIVAL, E. — Dept of Zool., Canterbury Univ. Coll., CHRISTCHURCH, New Zealand
- a. Embryology. *Tegulorhynchia nigricans (Brachiopoda)*

PERLMANN, H. P. — Wenner-Grens Inst. for experim. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

PERRI, T. Dott., Prof. — Ist. di Anat. Comp. dell'Univ., Fac. di Sci., Via Borelli 50, ROMA, Italia

PERSSON, H. Fil.mag. — Zoophysiol. Inst., Univ. of Lund, LUND, Sweden
- a. Nucleic acid metabolism during development. *Paracentrotus lividus (Echinoidea)*
- b. Mitotic synchronization of cells in tissue culture. *Gallus domesticus (Aves)*

PESONEN, S. K. Dr Phil. — Dept of Physiol., Zool. Lab., Fac. of Mathem. and Nat.Sci., Univ. of Helsinki, P. Rautatiekatu 13, HELSINKI, Finland (no embryological work in progress)

PETERS, Th. Dr Med. — Heiligenberg-Inst., (17b) HEILIGENBERG, Kreis Ueberlingen/Bodensee, Deutschland
  a. Einfluss der Röntgenstrahlen auf die Entwicklung. *(Urodela)*

PETRY, G. a.o.Prof. — Anat. Inst. der Univ., Robert Kochstr. 6, MARBURG/Lahn, Deutschland
  a. Funktionelle Histologie der Eihäute. *(Mammalia)*

PFLUGFELDER, O. Dr rer.nat., Prof. — Zool. Inst. der Landwirtschaftl. Hochschule, STUTTGART-HOHENHEIM, Deutschland
  a. Änderung des Stoffwechsels nach Störung des hormonalen Gleichgewichts. *(Insecta)*
  b. Entwicklungsphysiologie von Schwanzmissbildungen. *(Aves)*
  c. Einfluss der Pinealektomie auf die Postembryonalentwicklung. *Lebistes reticulatus (Teleostei)*
  d. Entwicklung. *(Acari, Arachnoidea)*
  e. Histophysiologie der corpora cardiaca. *(Insecta)*

PIATT, J. A.B., M.A., Ph.D. — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.
  a. Nerve pattern in heterotopically transplanted embryonic limbs. *Ambystoma punctatum* and *tigrinum (Urodela)*
  b. Nerve pattern in forelimb resulting from substitution of other parts of the CNS for the brachial segments of the spinal cord. *Ambystoma (Urodela)*
  c. Regeneration of the spinal cord in the adult frog. *Rana (Anura)* (in collaboration with Miss M. PIATT)

PIEPHO, H. Dr Phil., Prof. — Zool. Inst. der Univ. Göttingen, Mathem.-Naturw. Fak., Bahnhofstr. 28, GÖTTINGEN, Deutschland
  a. Metamorphose. *Galleria mellonella (Lepidoptera)*
  b. Polarität der Rumpfsegmente während der Metamorphose. *(Lepidoptera)*

PINCUS, G. Dr, Prof. — Worcester Foundation for Exper. Biol., 222 Maple Ave, SHREWSBURY, Mass., U.S.A.
  a. Physiology of reproduction. *(Mammalia)*
  b. Early development of eggs. *(Mammalia)*

PLETZEN, R. van D.Sc. — Dept of Zool., Univ. of O.F.S., BLOEMFONTEIN, South Africa
  (no embryological work in progress)

POLEŽAEV, L. V. Prof. — Inst. of Animal Morphol. of the Acad. of Sci. of the U.S.S.R., B. Kalužskaja 33, MOSKOU, Russia

PORTMANN, A. Dr Phil., Prof. — Zool. Anstalt der Univ., Rheinsprung 9, BASEL, Schweiz
  (no embryological work in progress)

POULSON, D. F. B.S., Ph.D., Prof. — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.
  a. Mid-gut: genesis and differentiation. *Drosophila melanogaster (Diptera)*
  b. Chromosomal control of differentiation. *Drosophila melanogaster (Diptera)*
  c. Neurogenesis in normal and genetically deficient embryos. *Drosophila melanogaster (Diptera)*

PRETO PARVIS, Mrs V. Dott. Med., Prof. — Ist. di Anat. umana norm. dell'Univ. di Milano, Via Mangiagalli 31, MILANO, Italia
  a. Modifications of contents in nucleinic acids and of the nuclear apparatus

in nervous cells during development in relation with their degree of growth and functional maturity. We study spinal motor-cells; receptive ganglion-cells; Purkinje's cells of cerebellum; pyramidal cells. Moreover the cell development of the trigeminal nerve's mesencephalic nucleus and that of spinal ganglia were studied comparatively. (Methods: Toluidine blue or Unna-Pappenheim and ribonuclease; Piekarsky-Robinow; Feulgen; Golgi; Cajal). *Felis domestica (Carnivora)*
b. Morphological and histochemical studies of histogenesis of chondroid and mucous tissues. We study the mucous tissue of the cox-comb; the peculiar connective tissue of the renal papilla; the tissues of the intervertebral disk. *(Aves* and *Mammalia)*
c. Histochemical study of histogenesis of cartilage. *Mus rattus (Rodentia)* (in collaboration with G. RONCORONI)
d. Quantitative study about the pre- and post-natal increase of cerebellar cortex and of its different strata, with particular reference to the evolutive cycle of the so called „stratum of the embryonic granules". *Felis domestica (Carnivora)*
e. Modifications in the histochemical characters of squamous stratified epithelia during the development, in connection with the modifications of the external medium. *(Amphibia, Mammalia)*

PRIESCHING, A. M.D. — Anat. Inst. der Univ. Wien, Währingerstr. 13, WIEN IX, Oesterreich

PROP, N. B.Sc. — Anat.-Embryol. Lab. der Rijks Univ., Oostersingel 69, GRONINGEN, Holland
a. Development of the egg by means of vital staining. *Ambystoma (Urodela)*
b. Chemical differentiation in the neural plate. *Ambystoma (Urodela)*

PUJIULA, J, S. I. M.I.E., M.R.Ac.Med. — Inst. Biol. de Sarriá, Dr Amigant 14, BARCELONA, Sarriá, España
a. Irrigación sanguínea de las articulaciones.
b. El sistema trino: epífisis, glándula genital, timo.
c. Origen de los megacariocitos.

QUÉNU, L. Dr en Méd. — Lab. des Travaux Anat., Fac. Méd. Nouvelle, 45 Rue des Sts Pères, PARIS VIe, France
a. Développement de l'appareil respiratoire. *Homo (Primates)*

QUEREUX, P. Dr en Med. — Lab. des Travaux Anat., Fac. Méd. Nouvelle, 45 Rue des Sts Pères, PARIS VIe, France
a. Développement du système bronchopulmonaire. *Homo (Primates)*

QUERNER, H. Dr rer.nat. — Inst. für exp. Krebsforschung der Univ. Heidelberg, Voszstrasse 3, HEIDELBERG, Deutschland
a. Hormonphysiologische Untersuchungen. *(Cyprinodontidae, Teleostei)*
b. Differenzierung primärer und sekundärer Geschlechtsorgane in vitro. *(Cyprinodontidae, Teleostei)*

RADECKA, Mrs E. ERDMAN M.Ph. — Zakład Zool. Ogólnej, Inst. Zool., Uniw.we Wroclawiu, ul.Sienkiewicza 21, WROCŁAW, Poland
a. The morphogenetical functions of the thyroid gland and hypophysis. *(Amphibia, Reptilia, Aves)*

RAE—WICKHAM, Mrs C. A. B.Sc. — Dept of Zool., Univ. of New England, ARMIDALE, N.S.W., Australia
a. Endocrine organs and their developmental rôle. *Blattella germanica* L., *Periplaneta* spp. *(Dictyoptera, Insecta)*

RAMSEY, Miss E. M. A.B., M.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
a. Placentation. Study of marginal sinus and venous drainage of placenta. *Macaca mulatta, Homo sapiens (Primates)*

RANDALL, J. T. Prof., F.R.S. — M.R.C. Biophysics Res. Unit., King's Coll., Strand, LONDON W.C.2, England

RANZI, S. F.I.I.E., Ph.D., Prof. — Ist. di Zool. e Anat. Comp., Univ. di Milano, Via Celoria 10, MILANO, Italia
a. Proteins in embryonic determination. *(Echinodermata* and *Amphibia)*
b. Protoplasmic structure.

RANZOLI, F. Dr — Ist. di Zool. e Anat. comp., Via Università 4, MODENA, Italia
a. Nucleolar changes and cycle of the ribonucleic acids during oogenesis. *(Gastropoda, Ascidiacea)*
b. Sexual differentiation and hermaphroditism. *Hydroides norvegica (Serpulidae, Polychaeta)*

RAPPAPORT, Jr., R. B.S., M.S., Ph.D. — Biol. Dept, Union Coll., SCHENECTADY 8, N.Y., U.S.A.
a. Role of water in growth and morphogenesis. *Rana pipiens (Anura)*
b. Early embryology. *Marinogammarus obtusatus. (Gammarides, Crustacea)*

RASMONT, R. Lic. Sci. Zool. — Lab. de Zool., Fac. des Sci., Inst. Zool. Torley-Rousseau, Univ. libre de Bruxelles, 50 Avenue F. D. Roosevelt, BRUXELLES, Belgique
a. Physiology of asexual reproduction. *(Spongillidae, Porifera)*

RAUNICH, L. Ph.D., M.D. — Ist. di Anat. Comp., Via Belmeloro 8, BOLOGNA (103), Italia
a. Development of blood and vascular system. *Petromyzon (Cyclostomata), Amia* and *Lepidosteus (Holostei)*
b. Action of growth-substances on tail-regeneration. *Rana, Bufo (Anura)*
c. Determination of neural plate. *Triton, Ambystoma (Urodela)*
d. Neural crest development. *(Amphibia)*
e. Effect of low temperature on early development. *(Amphibia)* (in collaboration with P. PASQUINI)
f. Action of carcinogenic hydrocarbons. *(Amphibia)*
g. Steroids during development (chemical detection) *(Amphibia)*

RAVEN, Chr. P. F.I.I.E., F.R.A., Dr Sc., Prof. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Influence of lithium on morphogenesis. *Aplysia limacina (Gastropoda)*
b. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with H. L. de BEAUFORT, J. BOENDER, W. L. M. GEILENKIRCHEN, R. J. M. LEEUWENBERG, J. A. LEUSSINK, Miss F. J. LODDER, W. de ROVER, Miss A. M. G. v. d. SANDE, A. F. SCHREURS and W. ZOUTEWELLE)
c. Development of stomodaeum. *Limnaea stagnalis (Gastropoda)*

RAWLES, Miss M. E. Ph.D. — Dept of Biol., The Johns Hopkins Univ., Charles and 34th Sts, BALTIMORE 18, Md, U.S.A.
— (visiting Prof., I-VII, 1956) Hubrecht Lab., Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland

a. Analysis of the development of regional differences in feather color pattern. Factors affecting the distribution and development of melanin pigment-forming cells. *Gallus domesticus (Aves)*

b. Analysis of the processes involved in the development of pigmentation and pigmentation patterns in the hair and skin. *Mus* spec. ("Hooded rat") and *Mus* spec. ("C57" Black Mouse) *(Rodentia)*

c. The origin and development of the dermis. *Gallus domesticus (Aves)* and *Mus* spec. ("C57" Black Mouse) *(Rodentia)*

d. Factors affecting the direction of the hair slope. *Rattus* spec. *(Rodentia)*

e. Causal analysis of the development of the neural crest (Subject of second international team-work, Hubrecht. Lab., I-VII, 1956). *(Aves* and *Mammalia)*

RAYNAUD, A. Dr ès Sci. — Lab. de l'Inst. Pasteur, SANNOIS, Seine et Oise, France

a. Recherches sur le développement embryonnaire normal de la glande mammaire. *Mus musculus (Rodentia)*

b. Production expérimentale de malformations mammaires chez le foetus, par action des hormones sexuelles. *Mus musculus (Rodentia)*

REAMS, Jr., W. M. B.S. — Dept of Biol., The Johns Hopkins Univ., Charles and 34th Sts, BALTIMORE 18, Md, U.S.A.

a. Factors affecting the distribution and differentiation of neural crest cells. *Gallus domesticus (Aves)*

REBERT, R. R. B.A., M.A., Ph.D. — Clin.Res.Dept., Med. Div., Merck and Co., Inc., Chem. Div., RAHWAY, N.J., U.S.A.

a. Origin of the ciliary ganglion. *Ambystoma punctatum (Urodela)*

b. Preliminary experiments on induction of germ cells. *Ambystoma punctatum (Urodela)*

RECHENMANN, R. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Morphogénèse et physiologie embryonnaire des glandes endocrines. *(Selachii, Teleostei)* (en collaboration avec J. VIVIEN et J. SCHOTT)

REGGIANI, Miss M. P. Dr — Ist. di Zool. e Anat. comp., Via Università 4, MODENA, Italia

a. Oogenesis and nurse cells: the cycle of the nucleic acids and the activity of the nucleolus. *Simocephalus vetulus (Cladocera, Crustacea)*

REID, B. L. M.B., B.S. — Dept. of Histol. and Embryol., Univ. of Sydney, SYDNEY, N.S.W., Australia

a. Pathology of foetal eye after maternal rubella. *Homo (Primates)*

REINBOLD, R. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Différenciation sexuelle normale et conditionnement hormonal du tubercule génital chez l'embryon. *Gallus (Aves)*

b. Le développement et la différenciation de l'oeil en culture in vitro. *Gallus (Aves)*

REINDERS, Miss J. H. — Anat.-Embryol. Lab. der Rijks Univ., Oostersingel 69, GRONINGEN, Holland

a. Development of the naso-lacrimal duct. *Mus musculus albinus (Rodentia)* (in collaboration with Miss A. G. LANINGA)

REIS, R. H. Ph.D. — Dept of Biol., Marquette Univ., 1217 West Wisconsin Ave, MILWAUKEE 3, Wis., U.S.A.

a. A study of the anomalous renal vessels and inferior vena cava. *Canis familiaris* and *Felis domestica (Carnivora)*
b. A study of the anomalous renal vessels and inferior vena cava. *Homo (Primates)*

REMOTTI, E. Dott. Med. e Chirurg., Prof. — Ist. di Anat. e Fisiol. Comp., Univ. di Genova, GENOVA, Italia

REVERBERI, G. F.I.I.E., Dr, Prof. — Ist. di Zool., Via Archirafi 18, PALERMO, Italia
a. The role of some enzymes in the embryonic development. (Marine *Evertebrata)*

REYER, R. W. B.A., M.A., Ph.D. — Dept of Anat., School of Med., Univ. of Pittsburgh, PITTSBURGH 13, Pa, U.S.A.
a. An experimental analysis of lens regeneration: a study of the causal mechanisms involved in lens regeneration from the dorsal iris and their relation to the processes of lens induction in the embryo. *Triturus viridescens, Ambystoma punctatum (Urodela)* (in collaboration with L. S. STONE, New Haven)
b. A study of lens induction: the duration of lens competence in body ectoderm of different regions and the action of the head mesoderm and of the optic vesicle in lens induction. *Triturus viridescens, Ambystoma punctatum (Urodela)*

REYNOLDS, S. R. M. A.B., M.A., Ph.D., D.Sc., Dr hon. Causa (Univ. Catol. de Chile) — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
a. Fetal vascular physiology. *Homo, Lepus* and *Ovis (Mammalia)*
b. Uterine contraction patterns. *Homo (Primates)*
c. Pulmonary vasculature, fetal and neonatal condition. *Ovis (Artiodactyla)*
d. Architecture of umbilical blood vessels, distended and non-distended. *Homo (Primates)*

RHODES, S. A. M.S. — Franklin Coll., FRANKLIN, Ind., U.S.A.

RICCIARELLI, Miss G. M. — Ist. di Biol. gen., Fac. di Med., S. Pietro, PERUGIA, Italia
a. Ricerche sull'ossiforo di Spirito (catalasi) negli embrioni. *Bufo (Anura)*

RICHTER, K. M. B.A., M.A., Ph.D. — Dept of Anat., School of Med., Univ. of Oklahoma, OKLAHOMA CITY, Okla., U.S.A.
a. Studies on the action of various drugs on embryonic heart tissue in culture.
b. Studies on a new 16—17 day ovum in situ. *Homo (Primates)*

RIECK, A. F. B.S., M.S., Ph.D. — School of Med., Marquette Univ., MILWAUKEE 3, Wis., U.S.A.
a. Limb development, as affected by carcinogenetic agents, during various phases of differentiation — mapping of the limb with the localized inhibition response to these carcinogens. *(Urodela)*
b. Reconstitution of bone and the polarity of the regenerative process. *Triturus viridescens (Urodela)*
c. Quantitative correlation of the regenerative process with thyroid activity. *Triturus viridescens (Urodela)*

RINGERTZ, N. R. M.B. — Embryol. Dept, Histol. Inst., Karolinska Inst., Solnavägen 1, STOCKHOLM 60, Sweden

a. On the embryonic sulphate metabolism. Autoradiographic studies with radiosulphate. *Mus, Rattus (Rodentia)*
b. Histochemical studies on the brain. *Mus (Rodentia)*

RISLEY, P. L. A.B., M.S., Ph.D., Prof. — Dept of Biol., Univ. of Oregon, EUGENE, Ore., U.S.A.

ROBERTSON, G. G. B.A., B.Sc., Ph.D., Prof. — Div. of Anat., Med. Units Div., Fac. of Biol. Sci., Univ. of Tennessee, MEMPHIS 3, Tenn., U.S.A.
a. Virus-induced abnormalities in embryos. *Gallus domesticus (Aves)*
b. Analysis of growth rates of prenatal ossification centers. *Homo (Primates)*

ROCCA, E. Dr Biol. Sci. — Ist. di Zool. e Anat. comp., Univ. di Milano, Via Celoria 10, MILANO, Italia
a. Flow birefringence and physical chemistry of embryonic proteins. *(Amphibia)*

ROCK, J. M.D. — Free Hospital for Women, 245 Pond Ave, BROOKLINE, Mass., U.S.A.
a. Histochemical observations on early fertilized ova of less than 14 days age. *Homo (Primates)* (in collaboration with A. T. HERTIG, W. J. MULLIGAN and Miss E. C. ADAMS)

ROLLHÄUSER, Dr Med. — Anat. Inst. der Univ., Robert Kochstr. 6, MARBURG/Lahn, Deutschland
(no embryological work in progress)

ROLLHÄUSER—ter HORST, Mrs J. O. B. Dr rer.nat. — Anat. Inst. der Univ., Robert Kochstr. 6, MARBURG/Lahn, Deutschland
a. Reaktion verschieden vorbehandelten Gastrula-Ektoderms auf denselben heterogenen Induktor. Behandlung der Gastrulae mit Hormonen, NaF, Butylalkohol u.a. Mit dem isolierten Ektoderm dieser Gastrulae werden Stücke erwachsener Triton-Leber umhüllt. *Triton alpestris (Urodela)*

ROMANI, Miss M. L. Dr — Ist. di Zool. e Anat. comp., Via Università 4, MODENA, Italia
a. Activity of sex hormones on the sex differentiation of gonads and Bidder's organs. *Bufo bufo (Anura)* (in collaboration with Miss L. LUGLI)

ROMANKOWOWA, Mrs A. M.Sc. — Zakład Anat. Porównawczej, Inst. Zool. Uniw., ul. Sienkiewicza 21, WROCŁAW, Poland
a. Development of sesamoid bones in the carpus. *(Rodentia, Insectivora)*

ROMANOFF, A. L. B.S., M.S., Ph.D., Prof. — Lab. of Chem. Embryol., Cornell Univ., c/o Rice Hall 105, ITHACA, N.Y., U.S.A.
a. Descriptive, experimental and physiological embryology. *(Aves)*
b. Genetical embryology. *(Aves)*
c. Pathological embryology. *(Aves)*
d. Regeneration. *(Aves)*

RONCORONI, G. — Ist. di Anat. umana norm. dell'Univ. di Milano, Via Mangiagalli 31, MILANO, Italia
a. Histochemical study of histogenesis of cartilage. *Mus rattus (Rodentia)* (in collaboration with Mrs V. PRETO PARVIS)
b. Studies of solubility of embryonic glycogen. *(Mammalia)*

ROOFE, P. G. Ph.D., Prof. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
a. Cytochemical and microchemical study of the developing nervous system and its relationship to developing behaviour patterns. *Ambystoma macu-*

latum (Urodela) (in collaboration with Mrs E. L. WENGER)
- b. Reconstruction of brain and cranial nerves of the first 4 Coghill stages. *Ambystoma maculatum (Urodela)* (in collaboration with R. PENFOLD)
- c. Histochemical patterns associated with the central nervous system in developmental behaviour. *Ambystoma maculatum (Urodela)* (in collaboration with Mrs E. L. WENGER and L. KELLER)
- d. Histochemical localization of glycogen associated with the central nervous system in developmental behaviour. *Ambystoma maculatum (Urodela)* (in collaboration with Mrs E. L. WENGER and L. JANOSKY)

ROOSEN-RUNGE, E. C. M.D. — Dept of Anat., School of Med., Univ. of Washington, SEATTLE 5, Wash., U.S.A.
- a. Quantitative studies in spermatogenesis. *(Mammalia)*

ROSE, S. M. Ph.D., Prof. — Dept of Zool., Univ. of Illinois, URBANA, Ill., U.S.A.
- a. Embryological studies in relation to regeneration, tumor formation and specific inhibition of embryonic differentiation. *Rana,* various spp.

ROSENBAUM, M. R. Dr — Dept of developm. Biol., Rockefeller Inst. for Med. Res., 66th St and York Ave, NEW YORK 21, N.Y., U.S.A.

ROSSI-DE RUBEIS, F. Prof. — Ist. di Anat. Um. norm., Univ. di Genova, Viale Benedetto 15, GENOVA, Italia

ROSIN, S. Dr, Prof. — Abt. f. Genet., Zool. Inst. der Univ. Bern, Sahlistrasse 8, BERN, Schweiz
- a. Borstenmuster und Flügelentwicklung. *Drosophila (Diptera)* (in Zusammenarbeit mit W. NEF)

ROSS, Miss J. R. W. B.Sc., M.B., Ch.B. — Anat. Dept, Charing Cross Hosp. Med. School, 62 Chandos Place, LONDON W.C. 2, England (U.K.)
- a. The development of the genital tract. *Ovis aries (Artiodactyla)* (in collaboration with Mrs R. A. C. McALLISTER)

ROSSI, A. Dr Biol.Sci. — Ist. di Anat. comp. dell'Univ., Fac. di Sci., Via Borelli 50, ROMA, Italia
- a. Ricerche sui trapianti xenoplastici.

ROSSINI, Miss M. C. Dr Nat.Sci. — Ist. di Anat. Comp., Via Belmeloro 8, BOLOGNA (103), Italia
- a. Analysis of formative movements during neurulation (with vital stains). *(Amphibia)*
- b. Researches on development of neural crest. *(Amphibia)*

ROSTAND, J. — 29 Rue Pradier, VILLE d'AVRAY, Seine et Oise, France
- a. Parthénogenèse et gynogenèse; régulation chromosomique par le froid. *(Amphibia)*
- b. Mutations (polydactylie, ectrodactylie, etc.) et anomalies provoquées par le milieu extérieur (principalement, "Anomalie P"). *(Amphibia)*
- c. Action protectrice de la glycérine à l'égard de la congélation des cellules spermatiques. *(Amphibia)*

ROVER, W. de B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
- a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

RÓŻEWSKA, Miss J. W. Physician — Inst. of Histol. & Embryol., Acad. of Med., Narutowicza 60, ŁODZ, Poland

RUDEWICZ, Mrs Cz. Physician — Inst. of Histol. & Embryol., Acad. of Med., Narutowicza 60, ŁODZ, Poland

RUDNICK, Miss D. Ph.D. — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.

a. Glutamine metabolism in development. *Ambystoma (Urodela)* and *Gallus (Aves)*

RUGH, R. A.B., M.A., Ph.D. — Radiological Research Lab., Dept of Radiol., Coll. of Physicians & Surgeons, Columbia Univ., 630 West 168th St, NEW YORK 32, N.Y., U.S.A.

a. Radiobiology.
b. Experimental embryology.
c. Effect of ionizing radiations on the fetus.

RUNNSTRÖM, J. A. M. F.I.I.E., Ph.D., M.D., Prof. — Wenner-Grens Inst. for exper. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

a. Induction phenomena in development. *(Echinodermata)*

RUTH, R. F. Ph.D. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.

a. Biochemical and immunochemical analysis of the synthesis and distribution of the contractile proteins, actin and myosin, in the development of the heart in the early embryo. *Gallus gallus (Aves)* (in collaboration with J. D. EBERT)

RUUD, Miss G. Cand.real. — Zool. Lab., Univ. of Oslo, OSLO-BLINDERN, Norway

RYKE, P. A. J. M.Sc., Ph.D. — Dept van Dierkunde. Potchefstroom Univ., POTCHEFSTROOM, Suid-Afrika

SABBADIN, A. Dr — Ist. di Zool. e Anat. comp., Fac. di Sci., Via Loredan 10, PADOVA, Italia

a. Differentiation of gonads. *(Amphibia* and *Reptilia)*
b. Sexual and asexual reproduction. *(Ascidiacea)*

SALA, M., S. J. Dr — Ist. di Zool. e Anat. Comp., Fac di Sci., Via Loredan 10, PADOVA, Italia

a. Distribution of activating and transforming principles in the archenteron roof of the neurula (analysis of the regional induction of the nervous system). *Ambystoma mexicanum (Urodela)*
b. Determination of the peripheral nervous system. *(Anura)*

SALZGEBER, Miss B. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Recherches sur l'action d'agents physiques et chimiques sur la différenciation sexuelle.
b. Recherches sur l'intersexualité expérimentale produite par irradiation aux rayons X. *(Aves)* (en collaboration avec Et. WOLFF)
c. Action de substances chimiques sur les gonades embryonnaires cultivées in vitro.

SÁMANO BISHOP, Miss A. Dr — Instituto de Biologia, Univ. Nac. Auton. de México, Casa del Lago, Chapultepec, MÉXICO, D.F., México

a. Origin and development of the acustic ganglia. *Sceloporus microlepidotus (Iguanidae, Reptilia)*
b. Development. *Tomodactylus fuscus* Davis & Dixon *(Amphibia)*

SAMUELS, A. J. Ph. B. — Div. Chem. Embryol., Med. Center, Univ. of Colorado, 4200 East Ninth Ave, DENVER 20, Colo., U.S.A.
a. Chemistry of muscle differentiation. *Gallus (Aves)* (in collaboration with H. HERRMANN and I. R. KONIGSBERG)

SANDE, Miss A. M. G. van der B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

SANGVICHIEN, S. M.B., M.D. — Dept of Anat., Fac. of Med. and Siriraj Hospital, Univ. of Med. Sci., BANGKOK, Thailand
a. An attempt to produce reversed heart beat by injection of 1 % novocain into the circulation of the embryo. *Gallus (Aves)*
b. An attempt to produce regeneration of the lens. *Hemidactylus platyurus (Lacertilia)*

SANTLER, Miss J. E. B.Sc. — Dept of Embryol., Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
a. Regeneration and induced proliferation in the adult. *Rattus norvegicus (Rodentia)* (in collaboration with M. ABERCROMBIE)
b. Study of cell relations in tissue culture. *Gallus domesticus (Aves)* (in collaboration with M. ABERCROMBIE and Miss H. M. KARTHAUSER)

SANYAL, S. M.Sc. — Dept of Zool., Presidency Coll., College St, CALCUTTA 12, India
a. Mechanism of cellular differentiation. *Hydra (Coelenterata)*
b. Properties of the interstitial cells. *Hydra (Coelenterata)* (in collaboration with S. MOOKERJEE)

SATO, T. D.Sc., D.Phil.Nat., Prof. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan
a. Linsenregeneration. *Cobitidinae* (und verwandte *Teleostei)*

SAUNDERS, J. W. B.S., M.S., Ph.D. — Dept of Biol., Marquette Univ., 1217 West Wisconsin Ave, MILWAUKEE 3, Wis., U.S.A.
a. Identification of prospective pigment cells. *Gallus domesticus (Aves)* and *Mus musculus (Rodentia)*
b. Factors affecting the rate of melanin synthesis in embryonic tissues. *Gallus domesticus (Aves)* and *Mus musculus (Rodentia)*
c. The role of the ectoderm in the development of the wing. *Gallus domesticus (Aves)*
d. An analysis of the factors affecting tract-specificity in embryonic feather areas. *Gallus domesticus (Aves)*

SAUSER, G. Dr, Dr, Mr, Prof. — Histol.-Embryol. Inst. der Univ., Müllerstrasse 59, INNSBRUCK, Tyrol, Österreich
a. Morphomechanik. *Homo (Primates)*
b. Histophysiologie und quantitative Cytologie.
c. Färbungs- und Konservierungstechnik. *Homo (Primates)*
d. Morphogenese und Histogenese.
e. Gewebezüchtung.

SAXÉN, L. O. M.A., M.D. — Dept of Physiol., Zool. Lab., Fac. of Mathem. and Nat. Sci., Univ. of Helsinki, P. Rautatiekatu 13, HELSINKI, Finland.
a. The development of the visual cells. *Rana (Anura)*

b. The inductive action of malignant tumors. *Triturus (Urodela)* (in collaboration with S. I. TOIVONEN)
c. Thyroid gland and adenohypophysis in delayed metamorphosis. *Xenopus laevis (Anura)* (in collaboration with S. I. TOIVONEN)

SCHABERG, A. M.D. — Lab. for Cytol. and exp. Histol., Fac. of Med., Univ. of Leyden, Rijnsburgerweg 10, Boerhaavekwartier, LEIDEN, Holland
a. Development of suprarenal gland. *Homo sapiens (Primates)*

SCHARLOO, W. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Metamorphosis. *Carcelia obesa (Diptera)*

SCHECHTMAN, A. M. F.I.I.E., A.B., Ph.D., Prof. — Dept of Zool., Univ. of Calif., LOS ANGELES 24, Cal., U.S.A.
a. Stability of cellular particulates in developing tissues and in neoplasms. *(Aves* and *Mammalia)* (in collaboration with A. A. HIRATA)
b. Macromolecular transfers in relation to the physiology of development.

SCHEIB—PFLEGER, Mrs D. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Rôle des hormones dans la différenciation sexuelle. Etudes biochimiques sur la régression des canaux de Müller. *Gallus (Aves)*

SCHENK, R. Dr Med. — Anat. Inst. der Univ., Gloriastr. 19, ZÜRICH, Schweiz

SCHINCKEL, P.G. B.V.Sc. — C.S.I.R.O. Sheep Biol. Lab. Great Western Highway, PROSPECT (P.O.Box 144, Paramatta), N.S.W., Australia
a. Pre-natal development and organization of the hair follicle population. *Ovis (Artiodactyla)*

SCHJEIDE, O. A. Ph.D. — Atomic Energy Project, Univ. of Calif., LOS ANGELES, Cal., U.S.A.
a. Inorganic ions of serum in the developing embryo. *Gallus domesticus (Aves)*
b. Serum proteins of the developing embryo; use of the ultracentrifugal flotation method. *Gallus domesticus (Aves)*
c. Biological effects of radiation.

SCHLESINGER, A. B. B.A., M.S. — Dept of Biol., School of Med., The Creighton Univ., OMAHA, Nebraska, U.S.A.
a. Physical and chemical nature of yolk. *(Aves)*
b. Mechanisms of growth of the marginal blastoderm. *Gallus (Aves)*
c. A description of the normal regression of mesenchyme in the middle ear cavity as compared with retention of middle ear mesenchyme in congenital conduction deafness. *Rattus norvegicus (Rodentia)*
d. Experimental attempts to alter the rate of mesenchymal regression in the middle ear cavity. *Rattus norvegicus (Rodentia)*

SCHNEIDER, D. Dr rer.nat. — Max Planck-Inst. für Biol., Spemannstrasse 34, TÜBINGEN, Deutschland
a. Entwicklungsphysiologie des Phototropismus.
b. Bildung des Integuments.
c. Regeneration.
d. Polymorphismus. *Bugula avicularia* (L) *(Gymnolaemata, Bryozoa ectoprocta)*

SCHNEIDER, R. Dr med. — Dr Senckenberg. Anat. Inst., Med. Fak. der Univ., Ludwig Rehnstr. 14, FRANKFURT/Main-Süd, Deutschland

SCHNETTER, M. Dr phil. — Zool. Inst. der Univ., Katharinenstr. 20, FREIBURG i. Brsg., Deutschland

SCHNITTER, M. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz
a. Development and metamorphosis in lethal mutants. *Drosophila* spec.

SCHOTT, J. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Morphogénèse et physiologie embryonnaire des glandes endocrines. *(Selachii, Teleostei)* (en collaboration avec J. VIVIEN et R. RECHENMANN)
b. Analyse du processus de régulation et de paragénèse. *(Selachii)* (en collaboration avec D. HAY et J. VIVIEN)

SCHOTTÉ, O. E. Dr, Prof. — Dept of Biol., Amherst Coll., AMHERST, Mass., U.S.A.

SCHREIBER, B. Dott.Sci.Nat., Prof. — Ist. di Zool. dell'Univ., PARMA, Italia
a. Bone induction. *(Amphibia)*

SCHREURS, A. F. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

SCHRÖDER, R. K. P. Dr Med. — Anat. Inst. der Univ. Hamburg, Schottmüllerstr. 1, HAMBURG 20, Deutschland
— from May 1, 1956: Pathol. Inst., Univ. Krankenhaus, Eppendorf, HAMBURG, Deutschland
a. Fetal membranes.

SCHWARTZ, V. — Max Planck-Inst. für Biol., Spemannstr. 34, TÜBINGEN, Deutschland
a. Ontogenese des Flügelmusters. *Plodia (Lepidoptera)*

SEDRA, S. N. B.Sc., M.Sc., Ph.D., F.Z.S. — Dept of Zool., Alexandria Univ., Moharram Bey, ALEXANDRIA, Egypt
a. Stages in normal development. *Bufo regularis (Anura)*
b. The segmentation of the urostyle. *Bufo regularis (Anura)*
c. The development of the nasal capsules. *Bufo regularis* (in collaboration with M. I. MICHAEL)
d. The ontogenesis of the vertebral column. *Bufo regularis* (in collaboration with A. A. MOURSI)

SEGAL, S. J. M.S., Ph.D. — Dept of Zool., State Univ. of Iowa, IOWA CITY, Iowa, U.S.A.
a. Development of the urogenital ducts. *Xenopus (Anura)*
b. Hormonal factors influencing prostatic neoplasms. *(Mammalia)*
c. Determination of the gonadotrophin secreting function of the hypophysis. *(Mammalia)*
d. Protein specificity of endocrine organs and secondary sex glands.

SEHE, Ch. T. — Dept of Zool., State Univ. of Iowa, IOWA CITY, Iowa, U.S.A.
a. Investigation of function of ultimobranchial body by radioautography (I^{131}). *(Vertebrata)*

SEIDEL, F. Dr Phil., o.Prof. — Zool. Inst. der Univ., Ketzerbach 63, (16) MARBURG/Lahn, Deutschland
— Max-Planck-Inst. f. Tierzucht und Tierernährung, (20a) MARIENSEE, Kreis Neustadt a. Rübenberge, Deutschland
a. Morphologische und physiologische Untersuchungen an der embryonalen Entwicklung. *Oryctolagus cuniculus (Lagomorpha)*
b. Morphologische und physiologische Untersuchungen an der embryonalen Entwicklung. *Platycnemis (Odonata), Gryllus (Orthoptera), Apis (Hymenoptera)* und *Ascaris (Nematoda)*

SELMAN, G. G. Ph.D. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
a. Study of the effects of destroying the primary organisation of mosaic and regulation eggs by ultrasonic treatment. *(Invertebrata)*
b. Some measurement of morphogenetic forces and the mechanical properties of the tissue concerned. *(Ampibia)*
c. Study of developing embryos using electronmicrographs of ultrathin sections. *(Amphibia)* (in collaboration with Mrs H. B. OLIVER—YATES)

SEMBRAT, K. Ph.D., D.Sc., Prof. — Zakład Zool. Ogólnej, Inst. Zool., Uniw. we Wrocławiu, ul. Sienkiewicza 21, WROCŁAW, Poland
a. Descriptive and experimental embryology. *Sagartia leucolena* Verril *(Anthozoa)*
b. Localization of the primary gonocytes in the early gastrula. *(Amphibia)*
c. The morphogenetical functions of the thyroid gland and hypophysis. *(Pisces, Amphibia, Reptilia, Aves)*
d. Early developmental stages. *Epimys norvegicus (Rodentia)*
e. Regulation and regeneration of the primary optic vesicle. *Triturus (Urodela)*

SEMBRATOWA, Mrs Z. OPOCZYŃSKA M.D., Prof. — Zakład Histol. i Embryol., Akad. Medycznej, Chalubińskiego 6a, WROCŁAW, Poland
a. Regulation and regeneration of the primary optic vesicle. *Triturus (Urodela)*

SENGEL, Ph. J. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Sur l'induction d'une zone pharyngienne. *Dugesia lugubris* O. Schm. *(Turbellaria)*
b. Croissance du germe plumaire et pigmentation de la peau d'embryon cultivée in vitro sur milieux naturels et synthétiques. *Gallus gallus (Aves)*

SENSENIG, E. C. B.A., M.S., Ph.D., Prof. — Univ. of Alabama, Med. Center, BIRMINGHAM 5, Alabama, U.S.A.

SETTLE, G. W. A.B, M.D. — Dept of Embryol., Carnegie Inst. of Washington, Wolfe and Madison Sts, BALTIMORE 5, Md, U.S.A.
a. Anatomy of club-foot deformities (particularly talipes equinovaris) in the fetus. *Homo (Primates)*

SEVKET GIZ, F. Dr, Prof. — Zooloji Enstitüsü, Süleymaniye-Müftülük, ISTANBUL, Turkey
a. Normal development of some marine species. *(Pisces)*

SHAFIQ, S. A. M.Sc., D.Ph. — Dept of Zool., Dacca Univ., DACCA, Pakistan
a. Cytological study of the differentiation of pancreatic cells (exocrine). *Bufo maculipenis (Anura)*

SHANER, R. F. Ph.D., F.R.S.C., Prof. — Dept of Anat., Univ. of Alberta, Med. School, EDMONTON, Alberta, Canada
  a. A study of abnormal hearts in embryos corresponding to the third month of human development. *Sus scrofa (Artiodactyla)*
  b. Study of a collection of abnormal embryos of an age corresponding to the third month of human development with the aim of throwing light on the development of various human abnormalities. *Sus scrofa (Artiodactyla)*

SHANNON, J. E. — Dept of Zool., Univ. of Connecticut, STORRS, Conn., U.S.A.
  a. Factors affecting reaggregation and segregated cells in tissue culture. (in collaboration with H. CLARK)

SHAPIRO, H. B.S., A.M., Ph.D., Prof. — Nat. Inst. of Health, BETHESDA, Md, U.S.A.

SHAVER, J. R. A.B., Ph.D. — Dept of Embryol., Div. of Biol., Calif. Inst. of Technol., PASADENA 4, Cal., U.S.A.

SHEN, S. C. Ph.D. — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.
  a. Comparative cytochemistry of C.N.S. *(Vertebrata)*

SHIINO, S. M. B.Sc., D.Sc. — Fac. of Fisheries, Mie Prefectural Univ., TSU-CITY, Mie-Pref., Japan
  a. Studies on the origin of teloblasts and their derivatives. *Goetice depressus (Brachyura, Crustacea)*

SHIN-IKÉ, T. — Osaka Dental Coll., HIRAKATA CITY, Osaka-Pref., Japan
  a. Factors in the morphogenesis of the pronephric system. *Triturus pyrrhogaster (Urodela)*

SHORT, B. F. Ph.D. — C.S.I.R.O. Sheep Biol. Lab., Great Western Highway, PROSPECT (P.O.Box 144, Paramatta), N.S.W., Australia
  a. Response to homologous skin antigens. *Mus musculus, Ovis (Mammalia)*

SHULOV, A. Dr Sc. Nat. — Dept of Zool., Hebrew Univ., JERUSALEM, Israel
  a. Ecological conditions of development of eggs. Artificially induced interruption of development (eggs) (The changes in yearly development cycles under influence of dryness or/and humidity). *Anacridium aegyptium, Pareuprepocnemis syriaca, Calliptamus* spec., *Schistocerca gregaria, Locusta migratoria migratorioides (Orthoptera)*
  b. Proteases of eggs. Correlation of the morphological changes in the embryo with appearance of proteases. *Schistocerca gregaria, Locusta migratoria migratorioides (Orthoptera)*

SHUTE, C. C. D. M.A., M.B., B.Chir. — Anat. School, Univ. of Cambridge, CAMBRIDGE, England (U.K.)
  a. Embryology. *(Insectivora)*
  b. Embryology. *(Squamata)*

SIEGFRIED, J. — Inst. d'Anat., Fac. de Méd., Univ. de Genève, 20 Rue Ecole de Méd., GENÈVE, Suisse
  a. Développement du plexus solaire (plexus coeliacus).

SIGOT, A. — Lab. de Biol. gén., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
  a. Etude de la sensibilité héréditaire au gaz carbonique. *Drosophila melanogaster (Diptera)*

SIGOT, M. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Etude biochimique du développement de l'intestin; constitution et fonctionnement enzymatique. *Gallus (Aves)*

SILÉN, L. K. P. Fil.Dr — Zootom. Inst., Univ. of Stockholm, 116 Drottninggatan, STOCKHOLM, Sweden

SILVER, P. H. S. Ph.D. — Anat. Dept, Middlesex Hosp., Med. School, LONDON W. 1, England (U.K.)

a. Development of pelvic viscera. *Homo (Primates)*

SINGER, M. A.M., Ph.D., Prof. — Dept of Zool., Cornell Univ., ITHACA, N.Y., U.S.A.

SINHA, T. P. B.S., M.S., M.B., Prof. — Dept of Anat., Prince of Wales Med. Coll., BEHAR, Patna, India

SIMON, Mrs D. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Explantation in vitro de jeunes embryons et étude des besoins nutritifs nécessaires à leur survie, leur différenciation et leur croissance par des aliments naturels et synthétiques entrant dans les milieux de culture. *Gallus (Aves)*

SINCLAIR, J. G. B.S., M.S., Ph.D., Prof. — Dept of Anat., Med. Branch, Univ. of Texas, GALVESTON, Tex., U.S.A.

a. Effects of urethane on reproduction and on the young across the placenta. *Mus musculus* (C57 and CBA strains) *(Rodentia)*
b. Anterior cerebral nerve plexus in adult and fetus. *Tursiops truncatus, Oryctolagus cuniculus, Mus musculus* and *Homo (Mammalia)*
c. Continued study of developmental anomalies. Brain. Heart. *Mus musculus* and *Homo (Mammalia)*
d. Continued study of transplacental effects of urethan. *Mus musculus (Rodentia)*
e. Developmental pattern and mechanism of iris and ciliary body. *Tursiops truncatus, Oryctolagus cuniculus, Mus musculus* and *Homo (Mammalia)*

SIPPEL, T. O. A.B., Ph.D. — Dept of Biol., The Johns Hopkins Univ., Charles and 34th Sts, BALTIMORE 18, Md, U.S.A.

a. Differentiation in respiratory metabolism of developing heart: respiration, anaerobic glycolysis, cytochrome system. *Gallus domesticus (Aves)*

SIRAKAMI, K. I. M.A. — Biol. Dept, Yamanashi Univ., KÔFU, Japan

a. Cell division of isolated blastomeres. *Triturus pyrrhogaster, Bufo vulgaris (Amphibia)*

SIRLIN, J. L. Dr Nat.Sci. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)

a. Differentiation of protein and nucleic acids in embryos. *(Amphibia)* (partly in collaboration with C. H. WADDINGTON and F. BILLETT)
b. Organ-specific transfer in embryos. *(Amphibia)* (in collaboration with T. ELSDALE)
c. Investigation of early embryonic development, using radioactive tracers. *Mus musculus (Rodentia)* (in collaboration with R. G. EDWARDS)

SKREB, N. M.D. — Inst. de Biol., Fac. de Méd., Salata, ZAGREB, Yougoslavie

a. Cytologie et cytochimie des premiers stades du développement. *Rhinolophus, Miniopterus (Chiroptera)*

- SLABÝ, O. Dr, Dr, Prof. — Inst. of Histol. and Embryol., Fac. of Med., Charles Univ., Karlovarská ul. 48, PLZEŇ, Czechoslovakia
    - a. The development of the skull. *(Amniota)*
    - b. The development of the limbs. *(Amniota)*
    - c. The development of the nasal cavity. *(Amniota)*
- SLIJPER, E. J. Dr, Prof. — Zool. Lab. der Univ., Plantage Doklaan 44, AMSTERDAM C, Holland
    - a. The embryonic bloodcirculation (ductus Botalli, ductus Arantii etc.) *(Cetacea, Mammalia)*
- SLÍPKA, J. Dr, Dr — Inst. of Histol. and Embryol., Fac. of Med., Charles Univ., Karlovarská 48, PLZEŇ, Czechoslovakia
    - a. The development of the brachial region. *(Amniota)*
    - b. The morphogenesis of the tongue from the standpoint of evolutionary morphology.
- SŁOTWIŃSKI, J. Dr, Prof. — The Acad. of Med., SZCZECIN, Poland
- SMITH, A. S. A.B. — Dept of Zool., Univ. of Calif., LOS ANGELES 24, Cal., U.S.A.
    - a. Induction of neural plate by dead and modified embryonic tissues. *(Amphibia)*
    - b. Macromolecular transfer from the maternal circulation to the fetus. *Oryctolagus cuniculus (Lagomorpha)*
- SMITH, Miss B. T. — Dept of Biol., Hamilton Coll., McMaster Univ., HAMILTON, Ontario, Canada
- SMITH, S. M.A., Ph.D. — Dept of Zool., Univ. of Cambridge, Downing Street, CAMBRIDGE, England (U.K.)
- SMITHBERG, M. Ph.D. — Roscoe B. Jackson Mem. Lab., BAR HARBOR, Me, U.S.A.
- SMRECZYŃSKI, S. Ph.D. — Zool. Dept of the Jagellonian Univ., St Anne 6, KRAKOW, Poland
  (no embryological work in progress)
- SNELLEN, H. A. Med. Dr, Prof. — Anat.-Embryol. Lab of the Univ. of Leyden, Wassenaarseweg, Boerhaavekwartier, LEIDEN, Holland
    - a. Heart and vessels in congenital malformations. *Homo (Primates)* (in collaboration with J. DANKMEIJER, Miss A. DEKKER and Miss H. C. v. INGEN)
- SNOOK, T. B.S., M.S., Ph.D. — Dept of Anat., School of Med., Univ. of North Dakota, GRAND FORKS, N. Dak., U.S.A.
    - a. Studies on the development of the spleen. *Homo (Primates)*
    - b. The relation of reticulum to epidermis in the developing hoof. *Sus (Artiodactyla)*
- SOBELS, F. H. Ph.D. — Genet. Inst. der Rijks Univ., Stationsstraat 9, UTRECHT, Holland
    - a. Developmental genetics of Abnormal Abdomen as studied in "(AA) CX, D(In/3R) Sb" and "fused" strains. *Drosophila melanogaster* Meigen *(Diptera)*
    - b. Developmental genetics of some sex-linked postembryonic lethals. *Drosophila melanogaster* Meigen *(Diptera)*
- SOBEY, W. R. Ph.D. — C.S.I.R.O. Anim. Gen. Sect., c/o Dept of Zool., Univ. of Sydney, SYDNEY, N.S.W. Australia
    - a. Investigations of antibody response. *Mus musculus, Oryctolagus cuniculus (Mammalia)*

SOUNHEIN, E. A.B. — Dept of Zool., Univ. of Calif., LOS ANGELES 24, Cal., U.S.A.
- a. Macromolecular transfers from the blood of the mother to that of the embryo. *Gallus domesticus (Aves)*

SPIEGEL, M. B.S., Ph.D. — Dept of Embryol., Div. of Biol., Calif. Inst. of Technol., PASADENA 4, Cal., U.S.A.
- a. Physiology of fertilization. *(Echinoidea)*
- b. Physiology of early development. *(Porifera, Echinoidea)*

SPIRITO, A. Dott., Prof. — Ist. di Biol. gen., Fac. di Med., S. Pietro, PERUGIA, Italia
- a. Origine e natura dei tumori. *Bufo (Anura)*

SPOFFORD, W. R. Ph.D., Prof. — Dept of Anat., School of Med., State Univ. of New York, 766 Irving Ave, SYRACUSE 10, N.Y., U.S.A.
- a. Induction and determination in the neural plate. *Ambystoma maculatum (Urodela)*
- b. Experimental neurogenesis. *Ambystoma maculatum (Urodela)*

SPRATT, Jr, N.T. A.B., Ph.D., Prof. — Dept of Zool., Coll. of Sci., Lit. and Arts, Univ. of Minnesota, MINNEAPOLIS 14, Minn., U.S.A.
- a. Investigating the nutrient requirements essential to morphogenesis and growth in the early stages of development (pre-streak and streak blastoderms). *Gallus domesticus (Aves)*
- b. Survey of dehydrogenase enzymes in early embryos: 1. Localization of enzyme activity. 2. Structural integrity and enzyme activity. *Gallus domesticus (Aves)*
- c. Regeneration. *Planaria* spec. *(Turbellaria)* and *Tubularia* spec. *(Coelenterata)*
- d. Cytological study of the developmental center (organizer). *Gallus (Aves)*

SRINIVASACHAR, H. R. B.Sc., M.Sc. — Dept of Zool., Central College, BANGALORE 1, India
- a. Development of chondrocranium — basis for classification and evolution. *(Pisces)*

SRIVASTAVA, M. D. L. D.Sc., F.N.A.Sc. — Dept of Zool., Allahabad Univ., ALLAHABAD, India
- a. Experiments on the Wolffian regeneration of the lens. *Rana tigrina (Anura)*
- b. Effects of thermal shock on the embryonic development. *Rana tigrina (Anura)*

STARCK, D. F.I.I.E., Dr med., o. Prof. — Dr Senckenberg. Anat. Inst., Med. Fak. der Univ., Ludwig Rehnstr. 14, FRANKFURT/Main-Süd, Deutschland

STÄRK, O. J. Dr rer.nat. — Zool. Inst. der Univ., Katharinenstr. 20, FREIBURG i. Brsg. Deutschland

STEFANELLI, A. F.I.I.E., Dr, Prof. ord. — Lab. di Istol. ed Embriol. della Fac. di Sci., Univ. di Roma, Via Borelli 50, ROMA, Italia
- a. Histogenetic determination and differentation of nervous cells. *(Teleostei, Amphibia* and *Aves)*
- b. Degeneration and regeneration of nervous cells. *(Teleostei, Amphibia* and *Aves)*

STEIN, Miss K. F. A.B., M.S., Ph.D. — Mount Holyoke Coll., SOUTH HADLEY, Mass., U.S.A.

a. Development of an abnormal homozygote due to the loptail gene (Lp). *Mus musculus (Rodentia)*

STEINBERG, D. M. Prof. — Zool. Inst. of the Acad. of Sci. of the U.S.S.R., Universitetskaja Nabereznaja 1, LENINGRAD 164, Russia

STEINER, H. Ph.D., Prof. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz

a. Development of the tetrapod-limb with special reference to mammals (embryological evidence of their arboreal origin). *(Amphibia, Reptilia, Aves* and *Mammalia)*

b. New embryological evidence of the "biogenetic law" in connection with the phenomenon of iteration and convergence, rudimentation and adaptation. *(Vertebrata)*

c. Embryological analysis of feather-growth. The problems of the "aftershaft" and of "diastataxy". *(Ratites* and *Carinatae, Aves)*

d. Colour and pigment-differentiation in the feather. *Melopsittacus undulatus (Aves)*

STEINITZ, H. Ph.D. — Dept of Zool., Hebrew Univ., JERUSALEM, Israel

a. Regeneration of retina from pigment epithelium. *(Urodela)*

b. Lens regeneration from iris. *(Urodela)*

c. Histogenesis of retina in normal development and regeneration. *(Amphibia)*

STENGER—HAFFEN, Mrs K. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Etude du développement et de la régression du mésonéphros. *Gallus (Aves)*

b. Recherches sur la différenciation in vitro des gonades embryonnaires. *(Aves)* (en collaboration avec Et. WOLFF)

c. Recherches sur les besoins nutritifs des gonades embryonnaires en culture in vitro. *(Aves)*

STEPHAN, Fr. Dr ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Formation du système vasculaire extraembryonnaire et son extension. Développement du coeur et des gros troncs artériels de l'embryon. *Gallus gallus (Aves)*

b. Etude expérimentale des anomalies et des suppléances vasculaires dans l'aire extraembryonnaire et l'embryon. *Gallus gallus (Aves)*

STEPHAN—DUBOIS, Mrs Fr. Dr ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Migration des néoblastes dans la régénération. Facteurs qui déclenchent cette migration. Etude de l'arrêt de la migration. *Euplanaria lugubris (Turbellaria)*

b. Migration des néoblastes dans la régénération. *Tubifex tubifex, Lumbriculus variegatus* and *Enchytraeus albidus (Oligochaeta)*

c. Migration des néoblastes dans la régénération caudale. *Nereis diversicolor (Polychaeta)*

STEPHENSON, N. G. M.Sc., Ph.D. — Zool. Dept, Univ. of Sydney, SYDNEY, Australia

a. Development. *Demansia olivacea, Ahaetulla punctulata* (Australian *Ophidia)*

STINSON, B. D. B.S., M.S. — Dept of Zool., Fac. of pure Sci., Columbia Univ., Broadway and 116th St, NEW YORK 27, N.Y., U.S.A.

a. The influence of thyroid function on the radiosensitivity of the regenerating forelimb of larvae. *Ambystoma opacum (Urodela)*

b. An experimental analysis of characteristic patterns of developmental aberrations resulting from retarded gastrulation. *Rana pipiens (Anura)*

STOCK, A. D.Phil., Ph.D. — Dept of Zool., Univ. of New England, ARMIDALE, N.S.W., Australia

a. Regeneration and the endocrine system. *Blattella germanica (Dictyoptera, Insecta)* (in collaboration with A. F. O'FARRELL and Miss J. MORGAN)

STOCKARD, A. H. Ph.D. — Dept of Zool., Univ. of Michigan, ANN ARBOR, Mich., U.S.A.

STONE, L. S. F.I.I.E., Ph.D., Prof. — Anat. Dept, School of Med., Yale Univ.
— Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.

STOUT, Miss V. M. M.Sc. — Dept of Zool., Bedford Coll., Regent's Park, LONDON N.W. 1, England (U.K.)

a. Development. *Daphnia (Cladocera, Crustacea)*

STRAUSS, F. M.D. — Anat. Inst., Bühlstr. 26, BERN, Schweiz

a. The oviduct during the passage of the egg. *(Mammalia)*

b. Comparative implantation. *(Mammalia)*

c. Comparative development of the brain. *Cricetus auratus (Rodentia)* (in collaboration with K. FEREMUTSCH, Waldau-Bern)

STRUDEL, G. Dr ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Les corrélations nerveuses chez l'embryon, étudiées par les méthodes d'excision chirurgicale. Origine des ganglions rachidiens et du système sympathique. *Gallus gallus (Aves)*

b. Le rôle du système nerveux et de la chorde dorsale dans la différenciation des vertèbres. *Gallus gallus (Aves)*

c. La différenciation sexuelle, par les méthodes de greffes, de castration, d'injection d'hormones et d'explantations. Différenciation normale et inversion sexuelle des gonades, des voies génitales et des caractères somatiques précoces. *Gallus* and *Anas (Aves)* (en collaboration avec Mrs Y. LUTZ—OSTERTAG, Mrs D. SCHEIB—PFLEGER, Miss B. SALZGEBER, A. HAMPÉ et Et. WOLFF)

STUART, E. G. Dr — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.

STUCHLY, Z. Dr, Prof. — Zakład Biol. Ogólnej, Akad. Med.. ul. Bujwida 9, WROCŁAW, Poland

STULTZ, W. A. A.B., Ph.D. — College of Medicine, Univ. of Vermont, BURLINGTON, Vt, U.S.A.

a. Studies on the structure and function of the spinal cord, trunk and limbs following removal or transplantation of central nervous tissue. *Ambystoma punctatum (Urodela)*

SUGINO, H. D.Sc., Prof. — Osaka Lib. Arts Univ., Hirano, Higashisumiyoshiku, OSAKA, Japan

a. Axial differentials in methylene blue reduction and indophenol blue reaction. *Notoplana humilis (Polycladidea)*
b. Effects of thiourea and N-phenyl-thiourea on the pigmentation. *Dugesia gonocephala (Tricladidea)*

SUGIYAMA, M. M.A., D.Sc. — Mar. Biol. Stat., Nagoya Univ., Sugashima-cho, TOBA, Mie-ken, Japan
a. Physiological studies on fertilization and artificial parthenogenesis. *Hemicentrotus pulcherrimus, Pseudocentrotus depressus (Echinoidea)* (in collaboration with M. ISHIKAWA)

SUKIRNA, M. Prof. — Fakultas Kedokteran, Universitas Indonesia, Bag. Ilmu Djaringan Tubuh, Salemba no. 6, DJAKARTA, Indonesia
a. Tail regeneration. *Gecko (Lacertilia)*

SULLIVAN, G. E. M.Sc. — Dept of Zool., Univ. of Sydney, SYDNEY, N.S.W., Australia
a. Development of musculature in the wing. *Gallus domesticus (Aves)*

SUNDELL, Mrs G. Fil.Kand. — Inst. for Zoophysiol., Uppsala Univ., UPPSALA, Sweden
a. The primary sex rate. *(Mammalia)* (in collaboration with P. E. LINDAHL)

SUNDELL, L. E. Fil.mag. — Inst. for Zoophysiol., Uppsala Univ., UPPSALA, Sweden
a. Physiological and chemical studies in yolk. *(Amphibia* and *Pisces)*

SWANN, M. M. M.A., Ph.D., Prof. — Dept of Zool., Univ. of Edinburgh, West Mains Rd., EDINBURGH 9, Scotland (U.K.)
a. Fertilisation and cleavage. *(Echinoidea)*
b. Division and growth. Micro-organisms

SWARTZ, G. E. B.A., M.A., Ph.D. — Dept of Biol., Univ. of Buffalo, BUFFALO 14, N.Y., U.S.A.

SZARSKI, K. W. Ph.D. — Zakład Anat. Porównawczej, Inst. Zool. Uniw., ul. Sienkiewicza 21, WROCŁAW, Poland
a. Development of the kidneys. *(Teleostei* and *Anura)*
b. Development of genital tracts and accessory glands. *(Chiroptera)*

TAHARA, Y. — Lab. of Morphol., Osaka Lib. Arts Univ., IKEDA, Osaka-Pref., Japan
a. Tail formation. *Rana (Anura)*
b. Formation of digestive tract. *Rana, Triturus, Hynobius (Amphibia)* (in collaboration with O. NAKAMURA)

TAHMISIAN, T. N. B.A., M.S., Ph.D. — Argonne National Lab., P.O. Box 299, LEMONT, Ill., U.S.A.
a. Effects of ionizing irradiations on tissue differentiation and metabolism in embryos. *Melanoplus differentialis differentialis* Thomas *(Orthoptera)*

TAKAMI, T. — Dept of Physiol., Sericult. Exper. Stat., Koenji, Suginami-ku, TOKYO, Japan
a. Embryology with special reference to the dormancy and activation of the hibernating egg. *Bombyx mori* L. *(Lepidoptera)*
b. Tissue culture and in vitro studies on the embryo, yolk cell and other egg components. *Bombyx mori* L. *(Lepidoptera)*

TAKAMOTO, K. M.Sc. — Lab. Exper. Embryol., Inst. of Polytechn., Osaka City Univ., Minami-Ogimati, Kita-ku, OSAKA, Japan

a. Experimental embryological analysis of gonadogenesis. *Triturus pyrrhogaster, Hynobius nebulosus (Urodela)*

TAKATA, Miss C. B.Sc. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-ku, NAGOYA, Japan

a. The effect of mesoderm and mesectoderm on the differentiation of the isolated areas of the endoderm of the neurula. *Triturus (Urodela)* (in collaboration with T. YAMADA)

TAKATA, K. M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan

a. Isolation of pentose-nucleoproteins with regional inducing effects. Studies of their electrophoretic patterns and active loci. *(Amphibia, Mammalia)* (in collaboration with T. YAMADA and Y. HAYASHI)

b. Chemical embryology of the blood island. *(Amphibia)* (in collaboration with T. YAMADA and Y. HAYASHI)

TAKAYA, H. Ph.D., Prof. — Biol. Lab., Dept of Lit. and Sci., Kônan Univ., KOBE, Japan

a. Regional differentiation of the central nervous system. *Triturus, Hynobius, Bufo, Rana (Amphibia)*

b. Production of situs inversus viscerum. *Triturus, Hynobius, Rana, Bufo (Amphibia)*

TAKISAWA, A. B.M., M.D., Prof. — Anat. Inst., Gunma Univ., MAEBASHI, Japan

a. The skeletal muscles in the course of metamorphosis. *Bufo vulgaris (Anura)*

b. Histochemical study on the retina in development. *Bufo vulgaris (Anura)*

TALBERT, G. B. B.S., M.A., Ph.D. — Dept of Anat., Coll. of Med., State Univ. of New York, 350 Henry St, BROOKLYN, N.Y., U.S.A.

a. Endocrine relations to reproduction. *(Mammalia)*

TAMANOI, I. M.Sc. — Dept of Biol., Fac. of Sci., Kyushu Univ., FUKUOKA, Japan

a. Analysis of the organizing substances by means of immunological methods. *(Amphibia)*

TARDENT, P. Dr — Stazione Zool., NAPOLI, Italia

a. Wiederholte Regeneration (Bedeutung der I-Zellen). *(Hydrozoa)*

b. Regenerationshemmung und Dominanzprinzip. *(Hydrozoa)*

TARTAR, V. Ph.D. — Dept of Zool., Univ. of Washington, SEATTLE 5, Wash., U.S.A.

a. Transplantation of nuclei. *Stentor coeruleus (Spirotricha, Ciliophora)*

b. Grafting. *Stentor coeruleus (Spirotricha, Ciliophora)*

TAVARES DE SOUSA, A. Dr, Prof. — Inst. de Histol. e Embryol., Fac. de Med., COIMBRA, Portugal (no embryological work in progress)

TEMPELTON, M. A.B. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.

a. Histochemical study of the influence of nerves upon the developing limb. *Gallus domesticus (Aves)*

TESTA, I. Dr — Heiligenberg-Inst., (17b) HEILIGENBERG, Kreis Ueberlingen/Bodensee, Deutschland

TE WINKEL, Miss L. E. A.B., A.M., Ph.D. — Dept of Zool., Smith College, NORTHAMPTON, Mass., U.S.A.

a. Study of cartilaginous and bony skeleton of paedogenetic forms. *Schindleria* spec. *(Teleostei)*

THEILER, K. Dr Med. — Anat. Inst. der Univ., Gloriastr. 19, ZÜRICH, Schweiz

THIEBOLD, J. J. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Morphogénèse des gonades et du tractus génital. *(Selachii, Teleostei)* (en collaboration avec J. VIVIEN et Th. MOSEN)

THOMASON, Miss D. B.A., Ph.D. — The Royal Free Hospital School of Med., 8 Hunter St, LONDON W.C. 1, England (U.K.)
a. Phosphate metabolism of nuclei in early development using P 32. *(Amphibia)* *(Amphibia)*
b. Study of phosphate metabolism in artificially induced microcephaly.
c. Study of spermatogenesis using tracers. *Xenopus laevis (Anura)*

THOMSON FLYNN, T. F.I.I.E., M.B.E., D.Sc., Prof. — Boston, Priestman's River, JAMAICA, West Indies

TÖNDURY, G. F.I.I.E., Prof. — Anat. Inst. der Univ., Gloriastr. 19, ZÜRICH, Schweiz

THORNTON, C. S. A.B., M.A., Ph.D. — Kenyon College, GAMBIER, Ohio, U.S.A.
a. Correlation between apical epidermal cap and ability to regenerate a limb in larval anurans. *Rana pretiosa (Anura)*
b. Removal of apical epidermal cap and effect on limb regeneration. *Ambystoma punctatum (Urodela)*
c. Foreign innervation of grafted limbs (from spinal cord grafted in tail fin) and its effect on apical cap formation and limb regeneration. *(Ambystoma opacum (Urodela)*

THURMOND, W. A.B., M.A. — Biol. Sci. Dept, Calif. State Polytechnic College, SAN LUIS OBISPO, Cal., U.S.A. *Regilla (Anura)*
a. The determination of onset of intermedin production and secretion. *Hyla*
b. Factors controlling the differentiation of the pars intermedia heteroplastically transplanted into albino larvae. *Hyla Regilla (Anura)*

TIEDEMANN, H. Dr Med., Dr rer. nat. — Heiligenberg-Inst., (17b) HEILIGENBERG, Kreis Ueberlingen/Bodensee, Deutschland
a. Chemische physiologie der Entwicklung. *(Amphibia)*

TIEDEMANN—WAECHTER, Mrs H. Dr rer.nat. — Heiligenberg-Inst., (17b), HEILIGENBERG, Kreis Ueberlingen/Bodensee, Deutschland.
a. Chemische physiologie der Entwicklung. *(Amphibia)*

TIXIER—VIDAL, Mrs A. — Lab. d'Histophysiol., Coll. de France, Place Marcelin Berthelot, PARIS Ve, France
a. Différenciation de la thyroïde embryonnaire en culture d'organe (méthode de WOLFF). *Gallus domesticus (Aves)*
b. Apparition de la fonction thyréotrope dans l'hypophyse embryonnaire (étude expérimentale). *Gallus domesticus (Aves)*

TOIVONEN, S. I. F.I.I.E., Ph.D., Prof. — Dept of Physiol., Zool. Lab., Fac. of Mathem. and Nat. Sci., Univ. of Helsinki, P. Rautatiekatu 13, HELSINKI, Finland
a. The specific action of heterogenous inductors. *Triton (Urodela)*
b. Analysis of the regulative potencies of the invaginating archenteron roof and of the induced neural plate along the dorsoventral and craniocaudal axes by heteroplastic transplantation of parts of the dorsal blastoporal lip. *Triturus alpestris, taeniatus* and *cristatus (Urodela)* (in collaboration with P. D. NIEUWKOOP, Utrecht)

c. Thyroid gland and adenohypophysis in delayed metamorphosis. *Xenopus laevis (Anura)* (in collaboration with L. O. SAXÉN)
d. Induction of mesoderm by killed inductors. *Triturus (Urodela)*
e. The inductive action of malignant tumors. *Triturus (Urodela)* (in collaboration with L. O. SAXÉN)

TOMITA, H. B.Sc., M.A. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-ku, NAGOYA, Japan
a. Melanin formation in color phenotypes. *Oryzias latipes (Teleostei)* (in collaboration with T. YAMAMOTO)
b. Melanin formation. *Rhacophorus schlegeli* var. *arborea (Anura)* (in collaboration with T. HISHIDA)

TOMLINSON, J. D. W. M.A., M.B., B.Chir. — Anat. Dept, London Hosp. Med. Coll., Turner St, LONDON E. 1, England (U.K.)
a. Descriptive and physiological embryology of the nervous system. *(Mammalia)*
b. Normal and pathological development of the vertebral venous system. *(Mammalia)*

TORREY, T. W. Prof. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.
a. Histochemical and experimental analysis of the development of the urogenital system. *Mus rattus (Rodentia)*

TRACY, H. C. Ph.D., Prof. (Emer.) — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
a. Development of all systems in relationship to behaviour. *Opsanus tau (Pisces)* (in collaboration with J. WINBLAD and Th. BATTY)
b. Development of the nervous system in relation to behaviour. *Opsanus tau (Pisces)*
c. Physiological stages in development. *Opsanus tau (Pisces)*

TRAMPUSCH, H. A. L. Dr Phil. — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
a. Studies concerning the effect of X-rays on embryonic development. Continuation of earlier experiments. *(Urodela)*
b. Studies on the factors leading to accumulation and determination of blastemata in regeneration. *(Urodela)*
  1. The role of the skeleton (in collaboration with A. J. VERGROESSEN)
  2. The role of the skin (in collaboration with Miss P. J. VISSER)
  3. The role of the nerves (in collaboration with C. VOGELSANG)
c. Histochemical analysis of regenerating limbs (in collaboration with Miss Ch. L. J. WALEN)
d. Experiments designed to test relations of some inhibitors of embryonic development to the effect of X-rays. *(Urodela* and *Rodentia)* (in collaboration with Miss G. J. de GREFTE)

TREFFERS, A. J. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
a. Development of the saccus vasculosus. *Trutta (Teleostei)*

TRIBE, Miss M. D.Sc. — King's Coll., Strand, LONDON W.C. 2, England (U.K.)
a. Fate of the dermatome. *Gallus domesticus (Aves)*
b. Early development of the gill pouches. *Rana temporaria (Anura)*

TRINKAUS, J. P. M.A., Ph. D. — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.
TRUSLOVE, Miss G. M. B.Sc., Ph.D. — Dept of Genetics, Univ. Coll. London, Gower St, LONDON W.C. 1, England (U.K.)
  a. Developmental genetics of skeletal mutants. *Mus musculus (Rodentia)*
TSCHUMI, P. A. Dr — Anat. School, Univ. of Cambridge, CAMBRIDGE, England (U.K.)
  a. The mode of growth of hindlimb buds and the role which the epidermis plays in it. *Xenopus laevis (Anura)*
TUCKER, R. D.V.M. — Dept of Vet. Anat. and Parasitol., School of Vet. Sci., Univ. of Queensland, Fairfield Rd, Yeerongpilly, BRISBANE, Queensland, Australia
  a. Crinogenesis of the salivary glands. *Gallus domesticus, Cavia cobaya, Bos taurus (Amniota)*
  b. Histogenesis of the digestive tract. *Bos taurus (Artiodactyla)*
TUFT. P. H. M.A., Ph.D. — Dept of Zool., Univ. of Edinburgh, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
  a. Embryonic growth: cell number, mass, density. *Rodnius (Hemiptera), Brachydanio rerio (Teleostei), Xenopus (Anura)*
TUNG, T. C. F.I.I.E., Dr, Prof. — Lab. of Developm. Physiol., Inst. of Exper. Biol., Acad. Sinica, 865 Chang Ning Rd, SHANGHAI
  — Marine Biol. Lab., TSINGTWO, China
TURNER, C. J. B.Sc. — Anat. Dept, London Hosp. Med. Coll., Turner St, LONDON E. 1, England (U.K.)
  a. Histochemistry of early embryonic stages. *(Mammalia)*
  b. Physiological changes in vagina and cervix. *(Mammalia)*
  c. Pathological development of foetal gonad. *(Mammalia)*
TWITTY, V. C. F.I.I.E., Dr, Prof. — Dept of Biol. Sci., Stanford Univ., STANFORD, Cal., U.S.A.
TYLER, A. F.I.I.E., Ph.D., Prof. — Dept of Embryol., Div. of Biol., Calif. Inst. of Technol., PASADENA 4, Cal., U.S.A.
  a. Physiology of fertilization. *(Echinoidea)*
  b. Physiology of early development. *(Echinoidea* and *Polychaeta)*
  c. Life-span, motility and metabolism of spermatozoa. *(Echinodermata, Annelida, Mollusca, Aves* and *Mammalia)*
  d. Immuno-embryology. *(Echinodermata* etc.*)*
UBBELS, Miss G. A. B.Sc. — Hubrecht Lab., Internat. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland
  a. Regional differentiation of artificially activated ectoderm. *Ambystoma mexicanum (Urodela)*
UBISCH, L. v. F.I.I.E., Dr jur. et phil., Prof. (Emer.) — PARADIS, Norge
  (no embryological work in progress)
ULRICH, H. Dr Phil., Prof. — Zool. Inst. der Univ. Göttingen, Mathem.-Naturw. Fak., Bahnhofstr. 28, GÖTTINGEN, Deutschland
  a. Strahlenwirkung in der Embryologie. *Drosophila melanogaster (Diptera)*
URBANI, E. Lib.Doc. — Ist. di Anat. comp. dell'Univ., Fac. di Sci., Via Borelli 50, ROMA, Italia
  a. Azione degli antimitotici sul metabolismo respiratorio. *(Amphibia)*
  b. Ricerche sui determinanti germinali. *(Insecta)*
  c. Ricerche sull'acido ribonucleico delle fasce vitellogene e dei nuclei vitellini. *(Echinodermata, Arachnoidea, Myriopoda* and *Mammalia)*

d. Ricerche sugli enzimi nella vita latente. *(Phyllopoda, Crustacea)*
e. Ricerche sugli enzimi negli eritrociti. *(Vertebrata)*
f. Ricerche sugli enzimi nello sviluppo. *(Amphibia)*

URBANI—MISTRUZZI, Mrs L. Dott. — Ist. di Anat. comp. dell'Univ., Fac. di Sci., Via Borelli 50, ROMA, Italia
a. Ricerche sulle parabiosi. *(Anura* and *Urodela)*
b. Ricerche sulle formazioni ergastoplasmatiche e sul ciclo secretorio. *(Pulmonata, Gastropoda)*

VAHS, W. Dr Phil. — Zool. Inst. der Univ. Köln, Kerpenerstr. 13, KÖLN-LINDENTHAL, Deutschland
a. Die Beeinflussbarkeit der Leistungsspezifität abnormer Induktoren in der Entwicklung. *(Amphibia)*
b. Der Einfluss der Wirtsregion auf die ventrale Sekundärinduktion. *Triturus (Urodela)*
c. Histochemische Untersuchung der Induktionsvorgänge. *Triturus (Urodela)*
d. Der Einfluss von UV-Licht auf die Induktionsvorgänge. *Triturus (Urodela)*

VAINIO, E. T. M.D. — Dept of Physiol., Zool. Lab., Fac. of Mathem. and Nat. Sci., Univ. of Helsinki, P. Rautatiekatu 13, HELSINKI, Finland
a. Teratomas caused by xenoplastic transplantations of Triturus embryos and different germinal layers. *Xenopus laevis, Triturus (Amphibia)*
b. The antigenicity of different germinal layers. *Triturus (Urodela)*
c. The immunological properties of experimental teratomas. *Triturus (Urodela)*

VAKAET, L. C. M.D. — Lab. of Anat., Fac. of Med., Univ. of Gent, Bylokekaai 1, GENT, Belgium
a. Cytochemistry of ovocytes. *Lebistes reticulatus (Teleostei)*

VANDEBROEK, G. Dr Sc., Prof. — Lab. d'Embryol., Inst. de Zool., Univ. de Louvain, 71 Rue de Namur, LOUVAIN, Belgique

VANDERHAEGE—HOUGARDY, Mrs F. Lic. en Sci. Botan. — Lab. de Morphol. anim., Univ. libre de Bruxelles, 1850 Chaussée de Wavre, BRUXELLES-Auderghem, Belgique
a. Nucleo-cytoplasmic relations. *(Amphibia)*

VANNINI, E. Dr, Prof. — Ist. di Zool. e Anat. comp., Via Università 4, MODENA, Italia
a. Cycle of the nucleic acids and nucleolar changes during oogenesis. *(Echinodermata, Pisces* and *Amphibia)*
b. Development of the gonads and their embryological relations with the cortico-adrenal blastema. *(Amphibia, Aves* and *Mammalia)*
c. Experimental analysis of the causal development of the gonads. *(Amphibia)*
d. Experimental regeneration and genesis of the germ-cells. *(Polychaeta)*

VASSEUR, E. J. E. Ph.D. — Wenner-Grens Inst. for experim. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

VEENSTRA—TROLLOPE, Mrs E. M. B.Sc.Hons. (Rand.) — Dept of Zool., Univ. of the Witwatersrand, Milner Park, JOHANNESBURG, South Africa
a. The effects of anti-organ sera on developing embryos. *Gallus domesticus*

VENZKE, W. I. D.V.M., M.Sc., Ph.D. — Dept of Vet. Anat., Ohio State Univ., COLUMBUS 10, Ohio, U.S.A.

a. Morphogenesis and physiology of pineal gland. *(Aves)*
b. Morphogenesis and physiology of blood. *(Aves)*
c. Experimental morphology of pineal gland. *Bovidae (Mammalia)*

VERDONK, N. H. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland
— Hubrecht Lab., Intern. Embryol. Inst., Janskerkhof 2, UTRECHT, Holland
a. Respiration of eggs and embryos. *Limnaea stagnalis (Gastropoda)*
b. Induction of tail mesoderm. *Ambystoma mexicanum (Urodela)*

VERGROESEN, A. J. — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
a. Studies on the factors leading to accumulation and determination of blastemata in regeneration; the role of the skeleton. *(Urodela)* (in collaboration with H. A. L. TRAMPUSCH)

VILLAFRANCA, G. W. de Ph.D. — Dept of Zool., Smith College, NORTHAMPTON, Mass., U.S.A.
a. Studies of various enzyme fractions in developing muscle in relation to the development of contractibility. *Mus norvegicus albinus (Rodentia)*
b. Studies on the myosin proteins in the differentiation of muscle. *Mus norvegicus albinus (Rodentia)*

VINTEMBERGER, P. Dr Méd., Prof. — Inst. d'Embryol., Fac. de Méd., 1 Place de l'Hôpital, STRASBOURG, France
a. Recherches sur le déterminisme de la symétrie bilatérale chez les Vertébrés. *(Amphibia, Aves)*

VISSER, Miss P. J. — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
a. Studies on the factors leading to accumulation and determination of blastemata in regeneration; the role of the skin. *(Urodela)* (in collaboration with H. A. L. TRAMPUSCH)

VIVIEN, J. Prof. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France
a. Morphogénèse des gonades et du tractus génital. *(Selachii, Teleostei)* (en collaboration avec J. J. THIEBOLD et Th. MOSEN)
b. Morphogénèse et physiologie embryonnaire des glandes endocrines. *(Selachii, Teleostei)* (en collaboration avec R. RECHENMANN et J. SCHOTT)
c. Analyse du processus de régulation et de paragénèse. *(Selachii)* (en collaboration avec D. HAY et J. SCHOTT)

VIVIER, Miss F. — Lab. d'Histol., Dép. d'Embryol., Fac. de Méd., 31 Rue Lionnois, NANCY (Meurthe & Moselle), France

VOGEL, N. W. — Dept of Zool., Indiana Univ., BLOOMINGTON. Ind., U.S.A.
a. The development of pituitary-gonad interactions. *Gallus gallus (Aves)*

VOGELSANG, Miss C. Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
a. Studies on the factors leading to accumulation and determination of blastemata in regeneration; the role of the nerves. *(Urodela)* (in collaboration with H. A. L. TRAMPUSCH)

VOY, A. Dr ès Sci. — Lab. de Zool., Fac. des Sci., POITIERS, Vienne, France
a. Croissance, régénération. *(Orthoptera)*

b. Oeufs à développement rapide et oeufs à developpement retardé. *Clonopsis (Orthoptera)*

WADDINGTON, C. H. F.I.I.E., F.R.S., M.A., Sc.D., Prof. — Inst. of Animal Genet., Univ. Dept of Genet., King's Buildings, West Mains Rd, EDINBURGH 9, Scotland (U.K.)
a. Cinematographic study of morphogenetic movements. *(Amphibia* and *Aves)*
b. Transplantation of cell constituents. *Triton alpestris (Urodela)* (in collaboration with E. M. PANTELOURIS)
c. Metabolism of radio-isotopes. *Triton (Urodela)* (in collaboration with J. L. SIRLIN)
d. Phenocopies. *Drosophila (Diptera)*
e. Developmental effects of metabolic antagonists. *(Ascidia, Amphibia, Aves)*

WAELSCH, Mrs S. GLUECKSOHN Ph.D. — Dept of Anat., Albert Einstein Coll. of Med., 1710 Newport Ave, NEW YORK 61, N.Y., U.S.A.
a. Developmental genetics. *Mus musculus* L. *(Rodentia)*
b. Developmental physiology. *Mus musculus* L. *(Rodentia)*

WAGNER, G. Ph.D. — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz
a. Chimaerische Kopfskelette. *Bombinator* and *Triturus (Amphibia)*

WALEN, Miss Ch. L. J. — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland
a. Histochemical analysis of regenerating limbs (in collaboration with H. A. L. TRAMPUSCH)

WALKER, B. E. B.Sc., M.Sc., Ph.D. — Dept of Anat., McGill Univ., MONTREAL, Quebec, Canada
a. Development of the secondary palate. *Mus musculus (Rodentia)*
b. Embryology of cortisone induced cleft palate. *Mus musculus (Rodentia)*

WALKMEISTER, A. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH 6, Schweiz
a. Pterylosis. *Gallinacea (Aves)*

WATTERSON, R. L. Ph.D. — Cresap Biol. Lab., Northwestern Univ., EVANSTON, Ill., U.S.A.
a. The effects of colchicine upon development of the neural tube. *Gallus domesticus (Aves)*
b. The effects of nitrogen mustard upon development of the neural tube and its intraneural vascular pattern. *Gallus domesticus (Aves)*
c. Modified ribs produced by exposure of the thoracic region of 2-day embryos to nitrogen mustard. *Gallus domesticus (Aves)*
d. Effects of hypophysectomy upon the development of the liver, spleen, glycogen body and feather germs of the embryo. *Gallus domesticus (Aves)*
e. Effects of mitotic inhibitors upon the development of feathers. *Gallus domesticus (Aves)*
f. Preparation of a review paper on development, coloration and molt of plumage. *Gallus domesticus (Aves)*

WEBER, A. F.I.I.E., Prof. (Emer.) — Lab. de Neurohistol., Inst. d'Anat., Ecole de Méd., 20 Rue Ecole de Méd., GENÈVE, Suisse
a. Développement du sytème nerveux

WEBER, R. D.Phil.nat. — Zool. Inst. der Univ. Bern, Sahlistr. 8, BERN, Schweiz

a. Biochemistry of mitochondria during embryonic development. *Tubifex rivulorum (Oligochaeta), Xenopus laevis (Anura)*

b. Submicroscopical structure of the egg. *Tubifex rivulorum (Oligochaeta), Xenopus laevis (Anura)*

WEDIN, B. Dr — Försvarets Forskningsanstalt, Avdelning 1, SUNDBYBERG 4, Sweden

WĘGLARSKA, Miss B. B.Sc. — Zool. Dept of the Jagellonian Univ., St Anne 6, KRAKOW, Poland

a. Descriptive embryology. *Hypsibius megalonyx (Eutardigrada)*

WEISS, L. B. — Dept of Anat., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.

a. The cytology, histochemistry and electron microscopy of the granular cells of the metrial gland of the gravid female. *Rattus norvegicus (Rodentia)* (in collaboration with G. B. WISLOCKI, M. BURGOS and R. ELLIS).

WEISS, P. A. F.I.I.E., Ph.D., M.D. (hon.c.), Prof. — Dept of developm. Biol., Rockefeller Inst. for Med. Res., 66th St and York Ave, NEW YORK 21, N.Y., U.S.A.

WEISZ, P. B. B.S., Ph.D. — Arnold Biol. Lab., Brown Univ., PROVIDENCE 12, R.I., U.S.A.

a. Study of morphogenesis. *Stentor* and *Blepharisma (Ciliata)*

b. Study of cell division. *Stentor (Ciliata), Rana pipiens (Anura), Mus norvegicus albinus (Rodentia)*

WELLER, E. M. A.B., M.S. — Dept of Zool., Univ. of Calif., LOS ANGELES 24, Cal., U.S.A.

a. Studies of the proteins in the serum of the developing embryo. *Gallus domesticus (Aves)*

WELLS, L. J. Ph.D., Prof. — Dept of Anat., School of Med., Univ. of Minnesota, MINNEAPOLIS 14, Minn., U.S.A.

a. Effects of subcutaneously implanted cortisone and hydrocortisone upon the adrenal cortex of fetuses. *Mus rattus (Rodentia)*

b. Formation of the inguinal bursa. *Homo (Primates)*

WENDT, G. G. Dr Med. — Anat. Inst. der Univ., Robert Kochstr. 6, MARBURG/Lahn, Deutschland

a. Embryonalentwicklung der Hautleisten und Tastballen. Beziehung zur Entwicklung der Blutgefässe und zu intrauterinen Druckschwankungen. *(Rodentia), (Mammalia), Homo (Primates)*

WENGER, B. S. B.S., M.S., Ph.D. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.

a. Experimental and microchemical analysis of the developing nervous system and its relationship to peripheral structures. *Gallus domesticus (Aves)*

WENGER, Mrs E. L. B.A., M.A., Ph.D. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.

a. Cytochemical and microchemical study of the developing nervous system and its relationship to developing behaviour patterns. *Ambystoma maculatum (Urodela)* (in collaboration with P. G. ROOFE)

b. Histochemical patterns associated with the central nervous system in developmental behaviour. *Ambystoma maculatum (Urodela)* (in collaboration with P. G. ROOFE and L. KELLER)

d. Histochemical localization of glycogen associated with the central nervous system in developmental behaviour. *Ambystoma maculatum (Urodela)* (in collaboration with P. G. ROOFE and L. JANOSKY)

WENIGER, J. P. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Associations d'organes embryonnaires de même espèce et d'espèces différentes en culture in vitro; gonades, intestin. *(Aves, Mammalia)*

WESTHUIZEN, C. M. v. d. M.Sc. — Zool. Inst., Univ. of Stellenbosch, STELLENBOSCH, South Africa.

a. Ontogenesis of the skull. *Heleophryne purcelli (Anura)*

WEY—SCHUÉ, Mrs M. Lic. ès Sci. — Lab. de Zool., Inst. de Zool. et de Biol. gén., Fac. des Sci., 12 Rue de l'Université, STRASBOURG, France

a. Problèmes relatifs à l'origine des cellules de régénération. *Triturus (Urodela)*

b. Problème de la réduction de la taille et du nombre de doigts du membre postérieur de l'embryon, sous l'influence des rayons X. *Gallus domesticus (Aves)*

WHITING, H. P. M.A., Ph. D. — Dept of Zool., The Univ., BRISTOL 8, England (U.K.)

a. Development of the nervous system and behaviour pattern. *Scylliorhinus canicula, Petromyzon fluviatilis, Salmo* spp. *(Pisces)* (in collaboration with J. E. HARRIS)

WICKLUND, Miss E. W. Ph.lic. — Wenner-Grens Inst. for experim. Biol., Norrtullsgatan 16, STOCKHOLM Va., Sweden

WILDE, Jr., C. E. A.B., A.M., Ph.D. — Dept of Pathol., School of Dentistry, Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.

a. Organogenesis in vitro (limb bud, gills, cranial neural crest). *Ambystoma maculatum* (Shaw) *(Urodela)*

b. Cellular differentiation (pigment cell, ectomesenchyme). *Ambystoma maculatum* (Shaw) *(Urodela)*

1. causal biochemistry of cellular differentiation.
2. differentiation of cytoplasmic fragments.

WILENS, Miss S. W. A.B. — Osborn Zool. Lab., Yale Univ., NEW HAVEN 11, Conn., U.S.A.

a. The movements of the endoderm in early stages studied with the use of vital dyes. *(Urodela)*

WILLIAMS, C. M. Prof. — Biol. Lab., Harvard Univ., Divinity Ave, CAMBRIDGE 38, Mass., U.S.A.

WILLIAMS, R. G. A.B., M.S., M.D., Prof. — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.

WILLIAMS, S. C. B.S., Ph.D. — Dept of Anat., School of Med., Univ. of Pennsylvania, PHILADELPHIA 4, Pa, U.S.A.

a. Tissue culture of young isolated neuroblasts from special areas of brain, esp. cerebellum, medulla. *Gallus domesticus (Aves)*

WILLIER, B. H. F.I.I.E., B.S., Ph.D., Sc.D., Prof. — Dept of Biol., The Johns Hopkins Univ., Charles and 34th Sts, BALTIMORE 18, Md, U.S.A.

a. The mechanism of interaction of melanoblasts of known genotype with feather papilla in the production of feather pigmentation pattern. *Gallus domesticus* (various varieties) *(Aves)*
b. Factors regulating migration of melanoblasts and their growth (multiplication) and differentiation (synthesis of specific melanin granules). *Gallus domesticus* (various varieties) *(Aves)*
c. The role that sex and other hormones play in modifying the phenotypic expression of melanoblasts in color pattern formation. *Gallus domesticus* (various varieties) *(Aves)*
d. Ontogeny of endocrine correlation.

WILSON, J. G. B.A., M.A., Ph.D. — Dept of Anat., College of Med., Univ. of Cincinnati, CINCINNATI 8, Ohio, U.S.A.
a. Mechanism of the teratogenic action of trypan blue. Teratogenic action of azo dyes (survey). *Rattus* (albino) *(Rodentia)*

WILSON, J. W. Ph.D., Prof. — Arnold Biol. Lab., Brown Univ., PROVIDENCE 12, R.I., U.S.A.
a. A study of mitotic activity and other cytological phenomena in liver regeneration. *(Vertebrata)*

WINBLAD, J. A.B. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
a. Development of all systems in relation to behaviour. *Opsanus tau (Teleostei)* (in collaboration with H. C. TRACY and Th. BATTY)
b. Pharmacodynamics of development. *Opsanus tau (Teleostei)*

WINDLE, W. F. B.S., M.S., Ph.D., Sc.D. — Section Devel. and Regen., Lab. of Neuroanatomical Sci., NINDB, Nat. Inst. of Health, BETHESDA, Md, U.S.A.
a. Factors influencing regeneration of nerve fibers in the central nervous system of adult animals. *(Mammalia)*
b. Development of fiber tracts and nuclei in the brain. *Homo (Primates)*
c. Effects of asphyxia neonatorum on brain structure and function. Various species.

WINGSTRAND, K. G. Dr Phil. — Embryol. Dept., Zool. Inst., Univ. of Lund, LUND, Sweden

WINOWSKA, Mrs J. M.Sc. — Zakład Anat. Porównawczej, Inst. Zool. Uniw., ul. Sienkiewicza 21, WROCŁAW, Poland
a. Development of the air-bladder. *(Euphysoclisti, Teleostei)*

WISELY, Miss V.M. — Dept of Zool., Canterbury Univ. Coll., CHRISTCHURCH, New Zealand
a. Embryology. *Hyla ewingi (Anura)*

WISLOCKI, G. B. F.I.I.E., M.D., A.M., Sc.D., Prof. — Dept of Anat., Harvard Univ., Med. School, 25 Shattuck St, BOSTON 15, Mass., U.S.A.
a. Studies of the placenta. Histochemistry. *Equus caballus (Perissodactyla)* (in collaboration with E. W. DEMPSEY and E. C. AMOROSO)
b. The placenta studied by means of the electron microscope. *Felis domestica (Carnivora)* (in collaboration with E. W. DEMPSEY)
c. The cytology, histochemistry and electron microscopy of the granular cells of the metrial gland of the gravid female. *Rattus norvegicus (Rodentia)* (in collaboration with L. B. WEISS, M. BURGOS and R. ELLIS)

WITSCHI, E. F.I.I.E., Ph.D., Prof. — Dept of Zool., State Univ. of Iowa, IOWA CITY, Iowa, U.S.A.

a. Metabolism of normal and overripe eggs. *(Anura)*
b. Malformations. *(Vertebrata)*
c. Sex inheritance and differentiation (normal and experimental). *Rana, Bufo, Alytes* and *Xenopus (Anura)*
d. Parabiosis and hormones in sex differentiation. *Triturus torosus (Urodela)*
e. Metamorphosis of the ear. *(Anura)*
f. Embryologic and endocrine studies in adreno-gonadal relationships. *(Amphibia, Aves* and *Mammalia)*
g. Nutritional conditions in the incubating egg. *(Aves)*

WOELLWARTH, C. v. Dr Phil. — Heiligenberg-Inst., (17b), HEILIGENBERG, Kreis Ueberlingen/Bodensee, Deutschland

a. Induktion des Nervensystems. *(Amphibia)*

WOERDEMAN, M. W. F.I.I.E., M.D., D.Sc., Prof. — Anat.-Embryol. Inst., Municipal Univ. of Amsterdam, Mauritskade 61, AMSTERDAM O, Holland

a. Lensregeneration. *(Aves* and *Mammalia)*
b. Induction in tissue cultures and potencies of cells in tissue culture. *(Aves* and *Mammalia)* *(Amphibia* and *Aves)*
c. Development of specific substances during induction and regeneration.

WOLFF, Et.C. F.I.I.E., Dr ès Sci., Prof. — Lab. d'Embryol. expér. du Coll. de France, et Lab. d'Embryol. et de Tératol. expér. du C.N.R.S., 11 Place Marcelin Berthelot, PARIS Ve, France

a. Recherches expérimentales sur l'embryologie et la tératologie. Monstres simples, monstres doubles et poly-embryonie. *(Aves)*
b. La différenciation sexuelle, par les méthodes de greffes, de castration, d'injections d'hormones et d'explantations. Différenciation normale et inversion sexuelle des gonades, des voies génitales et des caractères somatiques *précoces. Gallus* and *Anas (Aves)* (en collaboration avec Mrs Y. LUTZ-OSTERTAG, Mrs D. SCHEIB—PFLEGER, Miss B. SALZGEBER, A. HAMPÉ et G. STRUDEL)
c. Problèmes relatifs à la régénération. Origine des cellules de régénération et processus d'induction dans la régénération. *Polycelis nigra, Euplanaria lugubris (Turbellaria), Triturus cristatus (Urodela)*
d. Recherches sur la différenciation in vitro des caractères sexuels embryonnaires (gonades, canaux de Müller etc.) et de différents organes. Besoins nutritifs des organes en culture en milieux synthétiques. *(Amniota)* (en collaboration avec Mrs STENGER—HAFFEN et Mrs Em. WOLFF)
e. Recherches sur l'intersexualité expérimentale produite par irradiation aux rayons X. *(Aves)* (en collaboration avec Miss B. SALZGEBER)

WOLFF, Mrs Em. Dr ès Sci. — Lab. d'Embryol. expér. du Coll. de France, et Lab. d'Embryol. et de Tératol. expér. du C.N.R.S., 11 Place Marcelin Berthelot, PARIS Ve, France

a. Recherches sur la différenciation et les besoins nutritifs en culture in vitro de la syrinx et du tubercule génital de l'embryon. *Anas boschas, Gallus gallus (Aves)*
b. Recherches sur les besoins nutritifs d'organes embryonnaires explantés et cultivés sur milieux synthétiques. *(Amniota)*

WOLSKY, A. Dr Phil. — Biol. Lab., Fordham Univ., NEW YORK 58, N.Y., U.S.A.
  a. The role of the central nervous system (optic tract) in the development of the compound eye. *Ephestia kühniella (Lepidoptera), Mormoniella vitripennis (Hymenoptera)*
  b. Effects of external factors (radiations, rotational force, gases in the athmosphere) on early embryonic development and regeneration. *Lumbricus terrestris (Annelida), Bombyx mori (Lepidoptera), Triturus viridescens (Urodela)*
  c. The physiology of body color genes. *Drosophila melanogaster (Diptera), Cricetus (= Mesocricetus) auratus (Rodentia)*

WOODGER, J. H. Prof. — Middlesex Hosp., Med. School, LONDON W. 1, England (U.K.)
  a. New methods of describing the cleavage process.

WRBA, H. Dr rer.nat., Dr Med. — Inst. für exp. Krebsforschung der Univ. Heidelberg, Voszstrasse 3, HEIDELBERG, Deutschland
  a. Untersuchungen zur Frage der Differenzierung insbesondere des Zentralnervensystems und der Herzanlage in vivo und in vitro. *(Rodentia)*

WURMBACH, H. Dr, Prof. — Entwicklungsgesch. Abt., Zool. Inst. der Univ. Bonn, BONN, Deutschland
  a. Beeinflussung des Wachstums und der Differenzierung durch Wirkstoffe (Schilddrüsenhormon, Steroide, Thymuswirkstoffe). *Lebistes, Xenopus laevis, Bufo, Gallus (Vertebrata)*
  b. Formbildende Kräfte beim Wachstum (Wachstumsdynamik); formbildende Bedeutung der Gewebe. *Bufo (Anura), (Aves)*

YAGIU, R. D.Sc., Prof. — Zool. Lab., Fac. of Sc., Hiroshima Univ., HIROSHIMA CITY, Japan
  a. On the behavior of the macronuclear nodes. *Condylostoma spatiosum* Ozaki and Yagiu *(Heterotricha, Ciliata)*
  b. Macronuclear reorganization process and formation of double animals resulted from united exconjugants. *Condylostoma spatiosum* Ozaki and Yagiu *(Heterotricha, Ciliata)*
  c. The relationship between the abnormal arrangement of macronuclear nodes and the shape of the organism. *Condylostoma spatiosum* Ozaki and Yagiu *(Heterotricha, Ciliata)*
  d. The process of regeneration of the cell-organs on some ciliates. *Chlamyrodon pedarius (Holotricha), Condylostoma spatiosum* Ozaki and Yagiu *(Heterotricha, Ciliata)*

YAMADA, T. D.Sc., Prof. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan
  a. Isolation of pentose-nucleoproteins with regional inducing effects. Studies of their electrophoretic patterns and active loci. *(Amphibia, Mammalia)* (in collaboration with Y. HAYASHI and K. TAKATA)
  b. Chemical embryology of the blood island. *(Amphibia)* (in collaboration with Y. HAYASHI and K. TAKATA)
  c. The effect of mesoderm and mesectoderm on the differentiation of the isolated areas of the endoderm of the neurula. *Triturus (Urodela)* (in collaboration with C. TAKATA)

YAMAMOTO, K. — Dept of Zool., Fac. of Sci., Hokkaido Univ., SAPPORO, Japan

a. Studies on the fertilization. *Limanda schrenki, Oncorhynchus keta (Teleostei)*
b. Studies on the formation of eggs. *(Teleostei)*

YAMAMOTO, T. D.Sc., Prof. — Biol. Inst., Fac. of Sci., Nagoya Univ., Chigusa-Ku, NAGOYA, Japan
a. On the mechanism of fertilization and activation. *Oryzias latipes (Teleostei)*
b. Artificial induction of functional sex-reversal. *Oryzias latipes (Teleostei)*
c. Melanin formation in color phenotypes. *Oryzias latipes (Teleostei)* (in collaboration with T. HISHIDA and H. TOMITA)

YANAGIMACHI, R. — Dept of Zool., Fac. of Sci., Hokkaido Univ., North 8, West 5, SAPPORO, Japan
a. Development and life-history of Japanese forms. *(Rhizocephalia, Crustacea)* (in collaboration with A. ICHIKAWA)

YANAI, T. Ph.D. — Dept of Biol., Shimane Univ., MATSUE, Shimane-ken, Japan
a. Comparative embryology of hatching gland. *(Pisces* and *Amphibia)*
b. Experimental embryology of hatching gland. *(Amphibia)*

YAO, T. Ph.D. — Lab. of Developm. Physiol., Inst. for Exper. Biol., Acad. Sinica, 865 Chang Ning Rd, SHANGHAI, China

YNTEMA, C. L. F.I.I.E., Ph.D., Prof. — Dept of Anat., School of Med., State Univ. of New York, 766 Irving Ave, SYRACUSE 10, N.Y., U.S.A.
a. Induction and differentiation of ear ectoderm. *Ambystoma punctatum (Urodela)*
b. Regeneration of aneural limbs. *Ambystoma punctatum (Urodela)*
c. Development of autonomic nervous system. *Gallus domesticus (Aves)* (in collaboration with W. S. HAMMOND)
d. Development of the visceral skeleton. *Gallus domesticus (Aves)* (in collaboration with W. S. HAMMOND)

YOUNG, W. C. Ph.D., Prof. — Dept of Anat., Med. School, Univ. of Kansas, LAWRENCE, Kansas, U.S.A.
a. Reproduction as influenced by hypothyroidism and hyperthyroidism in both males and females. *Cavia porcellus (Rodentia)*
b. Sexual behaviour in the male. *Cavia porcellus (Rodentia)*

ZAAIJER, Miss J. J. P. Ph.D. — Lab. for Cytol. and exper. Histol., Fac. of Med., Univ. of Leyden, Rijnsburgerweg 10, Boerhaavekwart., LEIDEN, Holland
a. Cartilage and bone formation in vitro. *Homo sapiens (Primates)*

ZAHND, J. P. — Inst. d'Embryol., Fac. de Méd., 1 Place de l'Hôpital, STRASBOURG, France
a. Développement du squelette. Facteurs influençant le développement. *Anas (Aves)*

ZELLER, Ch. — Zool.-vergl. Anat. Inst., Naturw. Fak., Univ. Zürich, Künstlergasse 16, ZÜRICH, Schweiz
a. Nucleic acids in merogonic hybrids. *Triton (Urodela)*

ZEUTHEN, E. Dr Phil. — Lab. of Zoophysiol., Nat. Sci. Fac., Univ. of Copenhagen, Juliane Mariesvej 32, COPENHAGEN Ø, Denmark
a. Study with Cartesian divers of mitotic rhythm in oxygen uptake and in carbon dioxide output during cleavage period. *(Echinoidea)*

b. Mitotic rhythm in reduced weight (weight below water) during cleavage. *Psammechinus microtuberculatus (Echinoidea)* (in collaboration with W. L. M. GEILENKIRCHEN, Utrecht)

c. Synchronization of cell division in mass cultures of various cell types, by control of environmental factors. *Tetrahymena pyriformis (Holotricha, Ciliata)*

ZOTIN, A. I. Cand. Biol. Sci. — Inst. of Animal Morphol. "A. N. Severtsóv" of the Acad. of Sci. of the U.S.S.R., B Kaloezjskaja oel., d. 33, MOSKOU, Russia

a. Study of the water content of embryos. *Acipenser stellatus Pallas, A. güldenstädti* Brandt, *Huso huso (Acipenseriformes, Teleostei); Salmo salar morpha sebago* Girard, *Coregonus lavaretus baeri natio swirensis* Pravdin *(Clupeiformes, Salmonidae, Teleostei)*

ZOUTEWELLE, W. B.Sc. — Zool. Lab. der Rijks Univ., Janskerkhof 3, UTRECHT, Holland

a. Influence of various kations on development. *Limnaea stagnalis (Gastropoda)* (in collaboration with W. L. M. GEILENKIRCHEN and Chr. P. RAVEN)

ZUCCARELLO—POLLICITA, Mrs M. Dr — Ist. di Zool., Via Archirafi 18, PALERMO, Italia

a. The action of xenoplastic embryo extracts on explants. *(Amphibia)*

ZUCKERMAN, S. M.A., M.D., D.Sc., M.R.C.S., L.R.C.P., F.R.S., Prof. — Dept of Anat., The Med. School, Birmingham Univ., Edgbaston, BIRMINGHAM 1, England (U.K.)
(no embryological work in progress)

ZWEIBAUM, J. Dr, Prof. — Inst. of Histol. and Embryol., Acad. of Med., ul. Chałubińskiego 5, WARSZAWA, Poland
(no embryological work in progress)

ZWILLING, E. Ph.D. — Dept of Anim. Genet., Coll. of Agric., Univ. of Connecticut, Storrs Agric. Exper. Stat., STORRS, Conn., U.S.A.

a. Disaggregation and reaggregation of early embryos. Effects on differentiation. *Gallus domesticus (Aves)*

b. Culture behavior of early embryonic tissues. *Gallus domesticus (Aves)*

c. Ectoderm-mesoderm interaction in limb development. *Gallus domesticus (Aves)*

LIST OF INSTITUTES

with Composition of Scientific Staffs

(geographical order)

N. AFRICA

EGYPT

Alexandria, Moharram Bey, Alexandria Univ., Fac. of Sci.,
Dept of Zool.
RAMADAN, M. Head of Dept
* SEDRA, S. N. Asst Prof.
* MICHAEL, M. I. Demonstr.
* MOURSI, A. A. Demonstr.

Cairo, Abassai, Ain Shams Univ., Fac. of Sci.
* KAMEL, A.

MAROC

Rabat, Avenue Biarnay, Centre d'Etudes Sup. Sci.,
Lab. de Biol. Anim.
* METTETAL, C. Dir.
* BUSER—LAHAYE, Mrs J.
* BONS, J.

SUDAN

Khartoum, Univ. Coll. of Khartoum,
Dept of Anat.
BUTLER, H. Prof.

S. AFRICA

UNION OF SOUTH AFRICA

Bloemfontein, Univ. of O.F.S.,
Dept of Zool.
DUYVENÉ DE WIT, J. J. Prof.
PLETZEN, R. van Lect.
* DREYER, Miss M. V. Asst

Cape Town, Rondebosch, Univ. of Cape Town, Dept of Zool.
DAY, J. H. Prof., Dir.
MILLARD, Mrs N. A. H. Lect.

Cape Town, Seapoint, Beach Rd, Div. of Fisheries
MARCHAND, J. M. Prof., Dir.
* DAVIES, D. H. Sen. Prof., Off.
* JAGER, B. de Prof., Off.

Johannesburg, Hospital Hill, Univ. of the Witwatersrand, Med. School,
Dept of Physiol.
GILLMAN, J. Prof.
Dept of Histol.
GILBERT, Miss Chr. Sen. Lect.

Johannesburg, Milner Park, Univ. of the Witwatersrand, Fac. of Sci.,
Dept of Zool.
* BALINSKY, B. I. Prof., Head
* McKERROW, Miss M. J. Lect.
* GUBBAY, Miss V.
* ANDREW, Miss A.
* VEENSTRA—TROLLOPE, Mrs E. M. Lect.

Potchefstroom, Potchefstroom Univ.
Dept of Zool.
EISELEN, G. T. S. Prof., Dir.
RYKE, P. A. J. Docent
EEDEN, J. A. van Docent
(no embryol. work in progress)

Pretoria, Univ. of Pretoria, Fac. of Sci., Dept of Zool.
ELOFF, F. C. Prof., Head
MALAN, D. Sen. Lect.
* BARRY, T. H. Lect.

Stellenbosch, Univ. of Stellenbosch, Fac. of Sci., Zool. Inst.
TOIT, C. A. du Prof., joint Dir.
VILLIERS, C. G. S. de Prof., joint Dir.
* MALAN, Miss M. E. Sen. Lect.
Guest-workers:
* WESTHUIZEN, C. M. v. d.
* PENTZ, Miss K.
* ENGELBRECHT, D. v. Z.
* DIJK, D. E. van

N. AMERICA

CANADA

ALBERTA (Alta)

Edmonton, Univ. of Alberta, Med. School, Dept of Anat.
* SHANER, R. F. Prof., Dir.

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* Names of investigators who have sent in their data over this year.

BRITISH COLUMBIA (B.C.)

Vancouver 8, Univ. of British Columbia, Dept of Zool.
COWAN, I. McT. Prof., Head
* FORD, P. Assoc. Prof. Histol. & Embryol.
* NEWSTEAD, J. D.

ONTARIO (Ont.)

Guelph, Ontario Agricultural Coll., Dept of Entomol. and Zool.
OZBURN, R. H. Prof.
(no embryol. work in progress)
Hamilton, McMaster Univ., Fac. of Arts and Sci., Hamilton Coll.,
Dept of Biol.
KLEEREKOPER, H. Chairman
SMITH, Miss B. T.
Kingston, Queens Univ., Med. School, Dept of Histol. & Embryol.
* KROPP, B. N. Prof., Dir.
* JACOBS, M. S.
London, Univ. of Western Ontario, Dept of Zool.
* BATTLE, Miss H. I. Prof.
Toronto 5, Univ. of Toronto, Dept of Zool.
DYMOND, J. R. Prof., Chairman
* McCALLION, D. J.

QUEBEC

Montréal, 2900 Boulevard du Mont Royal, Univ. de Montréal, Fac. de Med.,
Dépt d'Histol. et d'Embryol.
BONIN, W. Prof., Dir.
Montreal, McGill Univ.,
Dept of Zool.
BERRILL, N. J. Prof.
RATTENBURY, J.
Dept of Anat.
* LEBLOND, C. P. Prof.
* WALKER, B. E.
Dept of Genetics
* CLARKE FRASER, F.
Ottawa, Univ. of Ottawa, Fac. of Med., Dept of Anat.
* MENSCHIK, Z. Asst Prof.
Dept of Histol.
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* STEINER, H. Prof.
* ANDERS, G.
* CHEN, P. S.
* KOCHER, W.
* LOOSLI, R.
* ZELLER, Ch.
* BENZ, G.
* SCHNITTER, M.
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* JOHNSON, F. R. Lect.
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* SKREB, N. Asst

LIST OF SUBJECTS
with Names of Investigators
(arranged according to organ systems and taxonomic groups)

GENERAL DIVISION

CLASSIFICATION INTO GENERAL RUBRICS

I Descriptive and comparative embryology
II Experimental developmental morphology
III Physiology of development
IV Development and genetics
V Development and pathology
VI Regeneration
VII Metamorphosis

CLASSIFICATION OF TAXONOMIC GROUPS AND SPECIAL ORGAN-SYSTEMS (to be used for all rubrics)

Taxonomic subdivision

EV **Evertebrata**
- P Protista
- A Porifera
- B Coelenterata
- C Vermes and Onychophora, Tardigrada and Linguatulida
- D Arthropoda
- E Mollusca
- F Bryozoa, Entoprocta, Brachiopoda and Hemichordata
- G Echinodermata
- H Urochordata and Cephalochordata

V **Vertebrata**

LV **Lower Vertebrates**
- I Pisces
- J Amphibia

HV **Higher Vertebrates**
- K Reptilia
- L Aves
- M Mammalia

Subdivision of special organ systems

1 **Skin**
- a general subjects
- b exo-skeleton
- c teeth
- d hair, horns, nails
- e feathers
- f sense organs
- g glands
- h mammae
- i pigment cells and patterns

2 **Nervous system**
- a general subjects

- b central nervous system
    - 1 brain
    - 2 spinal cord
- c accessory organs
    - 1 paraphysis
    - 2 parietal organ
    - 3 pineal body
    - 4 hypophysis
- d ganglia
    - 1 cephalic ganglia
    - 2 spinal ganglia
- e nerves
    - 1 cephalic nerves
    - 2 spinal nerves
- f para- and sympathetic and intramural nervous system
    - 1 para- and sympathetic nervous system
    - 2 intramural nervous system
- g meninges

3 Special sense organs

- a nasal organ
- b eye
    - 1 eye
    - 2 lens
- c ear
- d lateral sense organs

4 Skeleton

- a general subjects
- b embryonic temporary endo-skeleton
- c skull and visceral skeleton
- d truncal skeleton
- e skeleton of extremities
- f joints

5 Muscular system

- a general subjects
- b skeletal muscles (head, trunk and tail)
- c visceral muscles (head and trunk)
- d muscles of extremities

6 Alimentary tract

- a general subjects
- b mouth- and pharyngeal cavities
- c intestinal tract
- d proctodaeum
- e salivary glands
- f liver
- g pancreas

7 Respiratory organs

- a general subjects
- b external gills
- c internal gills
- d lungs and larynx
- e air-bladder

8 Heart, vascular system and blood
  - a general subjects
  - b heart
  - c/d arterial and venous system
  - e capillary system
  - f blood

9 Coelomic cavities and endothelia, lympathic system and connective tissue
  - a/b coelomic cavities and endothelia
  - c lympathic system
  - d connective tissue

10 Urogenital system and sex determination
  - a general subjects
  - b/c kidneys; nephric ducts and bladder
  - d/e/f gonads (ovary and testis), genital tracts and accessory glands
  - g sex determination

11 Endocrine glands
  - a general subjects
  - b hypophysis
  - c thymus
  - d thyroid gland
  - e parathyroid glands
  - f gonads
  - g adrenals
  - h pancreas

I. DESCRIPTIVE AND COMPARATIVE EMBRYOLOGY

SUBDIVISION

1 Theoretical problems and general questions
2 Methods and techniques
3 General subjects (asexual development, etc.)
4 Initial development
  - a General subjects
  - b Primordial germ cells
  - c Gameto-, ovo- and spermatogenesis
  - d Maturation
  - e Ovulation and oviposition
  - f Activation and fertilization
  - g Parthenogenesis

5 Cleavage and mitosis
  - a Cleavage
  - b Mitosis

6 Further development of Invertebrates
(including complete and partial — e.g. early — development)
  - EV Evertebrata
  - P Protista
  - A Porifera
  - B Coelenterata
  - C Vermes and Onychophora, Tardigrada and Linguatulida
  - D Arthropoda
  - E Mollusca

- F Bryozoa, Entoprocta, Brachiopoda and Hemichordata
- G Echinodermata
- H Urochordata and Cephalochordata

7 Further development of Vertebrates
(including complete and partial — e.g. early — development)

- a General investigations
  - 1 General subjects
  - 2 Complete development
  - 3 Partial development
  - 4 Implantation and placentation
- b Early development, gastrulation, etc.
  - 1 Early development
  - 2 Gastrulation and formation of germ layers
  - 3 Development of foetal membranes
- c Neurulation, etc.
  - 1 Neurulation (s.s.)
  - 2 Development of neural crest
  - 3 First larval development
- d Development of part of the organism
  - 1 Head
  - 2 Extremities
  - 3 Tail
- e Development of special organ-systems
  (Cf. general subdivision p. 141—143)
- f Histo- and cytogenesis

8 Growth and differentiation (Invertebrates and Vertebrates)

- a Growth
- a/b Growth and differentiation
- b Differentiation

1 Theoretical problems and general questions

Matějka, M. — a
Slípka, J. — b
Steiner, H. — a
Steiner, H. — b

2 Methods and techniques

Sauser, G. — c	M

3 General subjects

(asexual development, etc.)

Fisher, F. J. F. — a	Pl
Jones, W. E. — a	Pl
Brien, P. L. — a	B
Papi, F. — a	C
Legrand, J. J. — d	D
Brien, P. L. — a	F
Harvey, Mrs E. Browne — c	G
Hale, L. J. — a	H
Gilbert, P. W. — b	I
Harrison, R. J. — b	M
Hillemann, H. H. — b	M

4 Initial development

a General subjects

Mirolli, M. — a	C
Chanmugam, P. K. — a	I
Hart, D. S. — a	M

b Primordial germ cells

Blackler, A. W. C. — a	J
Sembrat, K. — b	J

c Gameto-, ovo- and spermatogenesis

Kemp, N. E. — c	EV+V
Franzén, Å. S. — a	EV
Brien, P. L. — a	B
Benazzi—Lentati, Mrs G. — a	C
Ghirardelli, E. — b	C
Lepori, N. G. — a	C
Chishima, K. — a	D

Greca, M. La — a D
Kawamura, K. — a D
Kühn, A. — e D
Makino, S. and
Nakanishi, Y. H. — a D
Larambergue, M. de — b E
Brien, P. L. — a F
Geiger, W. — a I
Yamamoto, K. — b I
Roosen-Runge, E. C. — a M

d Maturation

Herrebout, W. M. — a E
Moricard, R. — a M
Odor, Miss D. L. — a M

e Ovulation and oviposition

Alden, R. H. — a M

f Activation and fertilization

Benazzi—Lentati, Mrs G. — a C
Herrebout, W. M. — b E
Endo, Y. — b G
Yamamoto, K. — a I
Odor, Miss D. L. — a M

g Parthenogenesis

5 Cleavage and mitosis

a Cleavage

Woodger, J. H. — a
Jones, W. E. — a Pl
Kühn, A. — d B
Moore, A. R. — a G

b Mitosis

Swann, M. M. — b P
Weisz, P. B. — b P
Fujii, T. — a G
Weisz, P. B. — b J
Corliss, C. E. — a M
Fujii, T. — a M
Weisz, P. B. — b M

6 Further development of Invertebrates

(including complete and partial — e.g. early — development)

EV Evertebrata
P Protista

Fauré Fremiet, E.;
Hamard, Miss M. and
Gauchery, Miss M. — a
Nyholm, K. G. — b
Weisz, P. B. — a
Yagiu, R. — a

A Porifera

Kume, M. — a

B Coelenterata

Brien, P. L. — a
Kühn, A. — d
Leghissa, S. — b
Sembrat, K. — a

C Vermes and Onychophora, Tardigrada and Linguatulida

Bookhout, C. G. — a
Govaert, J. — a
Hylbom, J. R. — a
Jägersten, K. G. M. — a
Manton, S. M. — a
Monné, L. — a
Nyholm, K. G. — a
Ranzoli, F. — b
Węglarska, Miss B. — a

D Arthropoda

Attardo, Miss C. — a
Bergquist, H. — b
Caspari, E. W. — b
Chishima, K. — a
Colombo, G. — c
El Shatoury, H. H. — b
Henke, K. — a
Holst Christensen, P. J. — a, b
Ichikawa, A. — a
Ito, T. — b
Jura, Cz. — a
Krause, G. — d
Krzysztofowicz, Miss A. — a
Legrand, J. J. — b, d
Lüscher, M. — b
Manton, S. M. — b
Martin, Miss B. A. — a
Nakane, T. — a
Nüesch, H. — c
Pflugfelder, O. — d
Poulson, D. F. — a
Rappaport, R., Jr. — b
Schwartz, V. — a
Seidel, F. — b
Shiino, S. M. — a
Stout, Miss V. M. — a
Voy, A. — b

E Mollusca

Burdon-Jones, C. — a
Fonseca Sacarrão, G. da — a
Ince, Miss F. E. — a
Larambergue, M. de — a

F Bryozoa, Entoprocta, Brachiopoda and Hemichordata

Brien, P. L. — a
Kume, M. — a
Mawatari, Sh. — a
Percival, E. — a

G Echinodermata

Baltus, Miss E. — a
Moore, A. R. — a, b

H Urochordata and Cephalochordata

Brewin, B. I. — a
Burdon-Jones, C. — a
Colwin, A. L. and Colwin, Mrs L. H. — b
Hale, L. J. — a
Olsson, R. — b
Sabbadin A. — b

7 *Further development of Vertebrates*

(including complete and partial — e.g. early — development)

a General investigations

General subjects

Sauser, G. — d	
Battle, Miss H. I. — b	I
Chishima, K. — b	J
Moore, J. A. — b	J
Oliver—Yates, Mrs H. B. and Selman, G. G. — a	J
Waddington, C. H. — a	J
Wisely, Miss V. M. — a	J
Hajra, B. and Mookerjee, S. — b	L
Romanoff, A. L. — a	L
Waddington, C. H. — a	L
Boyd, J. D. — a	M
Hillemann, H. H. — b	M
Kissen, A. T. — a	M
Latimer, H. B. — c	M
Nicholas, J. S. — a	M
Seidel, F. — a	M
Silver, P. H. S. — a	M

Complete development

D'Ancona, U. — b	V
Baxter, E. W. — a	I
Damas, H. F. C. — a	I
Davies, D. H. — a	I
Jager, B. de — a	I
Lever, J. — a	I
Sevket Giz, F. — a	I
Cambar, R. — c	J
Sámano Bishop, Miss A. — b	J
Campenhout, E. van — c	K
Pasteels, J. — a	K
Stephenson, N. G. — a	K
Shute, C. C. D. — b	K
Beatty R. A. and Lucey, E. C. A. — d	M
Okada, Y. K. — a	M
Shute, C. C. D. — a	M

Partial development

Kamel, A. — a	J
Sedra, S. N. — a	J
Kamel, A. — b	K
Andrew, Miss A. — a	M
Gubbay, Miss V. — a	M
Heuser, C. H. — a	M
Richter, K. M. — b	M

Implantation and placentation

Corner, G. W. — a	
Alden, R. H. — a	M
Andrew, Miss A. — a	M
Bartelmez, G. W. — a	M
Böving, B. G. — a, b	M
Boyd, J. D. and Hamilton, W. J. — b	M
Burgos, M.; Wislocki, G. B.; Ellis, R. and Weiss, L. P. — a	M
Dempsey, E. W. and Wislocki, G. B. — b	M
Glenister, T. W. — d	M
Greulich, R. C.— b	M
Gubbay, Miss V. — a	M
Hamilton, W. J. and Harrison, R. J. — b	M
Harrison, R. J. and Harrison Matthews, L. — d	M
Harvey, E. B. — a	M
Hillemann, H. H. — a, b	M
Hoek, J. v. d. — a	M
Moghe, M. A. — a	M
Mossman, H. W. — a	M

Orsini, Mrs M. C. Ward — a M
Ramsey, Miss E. M. — a M
Strauss, F. — b M

b Early development, gastrulation, etc.

Colombo, G. — a J
Islam, A. — b J
Lutz, H. — a L
Glenister, T. W. — b M
Harrison, R. J. — a M
Pincus, G. — b M
Sembrat, K. — d M
Skreb, N. — a M

Early development

Böving, B. G. — a M

Gastrulation and formation of germ layers

Malan, Miss M. E. — a K
Grabowski, C. T. — b L
Lutz, H. and Lutz—Ostertag, Mrs Y. — d L

Development of foetal membranes

Bautzmann, H. — b V
Adamstone, F. B. — a L
Hajra, B. and Mookerjee, S. — b L
Kropp, B. N. — a L
Alden, R. H. — a M
Heuser, C. H. — b M
Mossman, H. W. — a M
Orsini, Mrs M. C. Ward — a M
Schröder, R. K. P. — a M

c Neurulation, etc.

Spratt, N. T., Jr. — d L

Neurulation (s.s.)

Development of neural crest

Raunich, L. — d J
Rossini, Miss M. C. — b J

First larval development

Muchmore, W. B. — a J

d Development of part of the organism

Head

Extremities

Geigy-Heese, R. — a I
Steiner H. — a V
François, Y. — a I
Tschumi, P. A. — a J
Slabý, O. — b HV
Cairns, J. M. — b L
Gubbay, Miss V. — a M

Tail

Tahara, Y. — a J

e Development of special organ-systems

Skin

General subjects

Rawles, Miss M. E. — c L
Rawles, Miss M. E. — c M
Wendt, G. G. — a M

Exo-skeleton

Teeth

Greulich, R. C. — a V
Leblond, C. P. — b V
Backhouse, K. M. — a M
Blechschmidt, E. — a M
Hughes—Glastone, Mrs S. — a M
Kindahl, Miss M. E. — a M
Parrant, M. — a M

Hair, horns, nails

Schinckel, P. G. — a M

Feathers

Steiner, H. — c L
Walkmeister, A. — a L

Sense organs

Glands

Yanai, T. — a I
Yanai, T. — a J
Cohn, S. A. — a L
Cohn, S. A. — a, b M

Mammae

McKerrow, Miss M. J. — a M
Raynaud, A. — a M

Pigment cells and patterns

Saunders, J. W. — a L
Steiner, H. — d L
Boyd, J. D. — c M
Saunders, J. W. — a M

Nervous system

General subjects

Baffoni, G. M. — a
Hughes A. F. W. — a
Weber, A. — a
Leghissa, S. — c V
Harris, J. E. and Whiting, H. P. — a I

Dreyer, Miss M. V. — a L
Hamburger, V. — a L
Levi-Montalcini, Miss R. — a L
Tomlinson, J. D. W. — a M

Central nervous system

Kollros, J. J. — e J
Boyer, C. C. — a M
Brown, J. W. — a M
Wrba, H. — a M

Brain

Manaresi, Miss A. — a V
Olsson, R. — a, c I
Penfold, R. and Roofe, P. G. — a J
Ariëns Kappers, J. — a M
Delmas, A. — a M
Eyries, Ch. — a, c M
Feremutsch, K. — a, c M
Feremutsch, K. and Strauss, F. — b M
Hogue, Miss M. J. — a M
Jansen, J. — a M
Olsson, R. — b M
Preto Parvis, Mrs V. — d M
Sinclair, J. G. — b M
Windle, W. F. — b M

Spinal cord

Accessory organs

Treffers, A. J. — a I

Paraphysis

Parietal organ

Pineal body

Oksche, A. A. — b J
Kamer, J. C. v. d. — a K
Venzke, W. I. — a L

Hypophysis (see also under endocrine glands)

Hagelin, L. O. — a I
Bartelmez, G. W. — c M

Ganglia

Cephalic ganglia

Rebert, R. R. — a J
Sámano Bishop, Miss A. — a K

Spinal ganglia

Nerves

Campenhout, E. van — a, b
Nakayama, T. — a M

Cephalic nerves

Penfold, R. and Roofe, P. G. — a J
Eyries, Ch. — a, b M
Humphrey, Miss T. — a M

Spinal nerves

Fenart, R. and Olivier, G. — a M

Para- and sympathetic and intramural nervous system

Siegfried, J. — a

Para- and sympathetic nervous system

Niessing, K. — a J
Hammond, W. S. and Yntema, C. L. — a L
Eyries Ch. — d M
Jit, I. — c M

Intramural nervous system

Meninges

Special sense organs

Nasal organ

Bijtel, Miss J. H. — d J
Slabý, O. — c HV
Laninga, Miss A. G. and Reinders, Miss J. H. — a M

Eye

Neiger, M. — a
Saxén, L. O. — a J
Coulombre, A. J. — a L
Bartelmez, G. W. — b M
Gubbay, Miss V. — a M
Sinclair, J. G. — e M

Eye (s.s.)

Steinitz, H. — c J

Lens

Ear

Bijtel, Miss J. H. — c J
Bast, T. H. — a M
Eyries, Ch. — b M
Guggenheim P. G.; Clements, L. P. and Schlesinger, A. — a M
Schlesinger, A. — c M

Lateral sense organs

Kille, R. A. — a I
Pehrson, G. T. — a I

Skeleton

General subjects

Greulich, R. C. — a V
Leblond, C. P. — b V
Te Winkel, Miss L. E. — a I
Murray, P. D. F. — c L
Jit, I. — d M
Robertson, G. G. — b M

Embryonic temporary endo-skeleton

Srinivasachar, H. R. — a I

Skull and visceral skeleton
Murray, P. D. F. — a V
Bertmar, G. — a I
Pehrson, G. T. — a, b I
Johnels A. G. — a I
Barry T. H. — a J
Michael, M. I. and Sedra, S. N. — a J
Pentz, Miss K. — a J
Westhuizen, C. M. v. d. — a J
Slabý, O. — a HV
Slípka, J. — a HV
Engelbrecht, D. van Z. — a L
Hammond, W. S. and Yntema, C. L. — b L
Broers, C. J. — a M
Ford, E. H. R. — a M
Moffett, B. C., Jr. — a, b M

Truncal skeleton
Orska, Miss J. — a I
Kocher, W. — a J
Moursi, A. A. and Sedra, S. N. — a J
Sedra, S. N. — b J
Ludwig, K. S. — a M

Skeleton of extremities
Romankowowa, Mrs A. — a M

Joints
Pujiula, J. — a
Hipp, E. — a M
Moffett, B. C., Jr. — a, b, c M

Muscular system

General subjects
Holtzer, H. — b HV
Kacerovský, K. — a M

Skeletal muscles (head, trunk and tail)

Visceral muscles (head and trunk)
Gilbert, P. W. — a V
Fox, H. — d J

Muscles of extremities
Sullivan, G. E. — a L
Nakayama, T. — b M

Alimentary tract

General subjects
Campenhout, E. van — b
Geigy-Heese, R. — a I
Bellairs-Morgan, Mrs M. R. — a L
O'Connor, R. J. — a M
Tucker, R. — b M

Mouth- and pharyngeal cavities
Slípka, J. — b

Boschwitz, Miss B. D. — a J
Tribe, Miss M. — b J
Slípka, J. — a HV
Dreyer, Miss M. V. — a L
Kleiss, E. — a M
Walker, B. E. — a M

Intestinal tract
Coulombre, A. J. — b L
Boyden, E. A. — a M
Ford, P. — a M
Jit, I. — a, b M

Proctodaeum
Dijk, D. E. van — a J

Salivary glands
Tucker, R. — a HV

Liver

Pancreas
Shafiq, S. A. — a J
Kropp, B. N. — b L
Donaldson, J. C. — a M
Humphrey, Miss T. — b M

Respiratory organs

General subjects

External gills

Internal gills

Lungs and larynx
Campenhout, E. van — a
Dingler—Hahl, Mrs E. Ch. — a M
Holst Christensen, P. J. — c M
Orts Llorca, F. — a M
Quénu, L. — a M
Quereux, P. — a M

Air-bladder
Winowska, Mrs J. — a I

Heart, vascular system and blood

General subjects
Stephan, Fr. — a L

Heart
Dankmeijer, J. and Los, J. A. — a V
Albright, J. F. — b L
Baud, C. A. — a L
Baumann, J. A. and Gallera, J. — a L
Davies, F. and Francis, E. T. B. — a M
King, T. S. — a M
Latimer, H. B. — a M
Muir, A. R. — a M
Packer, A. D. — a M
Wrba, H. — a M

Arterial and venous system	
Pujiula, J. — a	
Grodziński, Z. — b	I
Raunich, L. — a	I
Mintz, Miss B. — a	L
Lyne, A. G. — a	M
Reynolds, S. R. M. — d	M
Slijper, E. J. — a	M
Arterial system	
Gobetto, A. — b	M
Venous system	
Tomlinson, J. D. W. — b	M
Capillary system	
Blood	
Pujiula, J. — c	
Raunich, L. — a	I
Chishima, K. — b	J
Gonzălez Guzmán, I. — a	L
Knight, Miss P. F. — a	L
Venzke, W. I. — b	L
Gonzălez Guzmán, I. — a	M
Coelomic cavities and endothelia, lymphatic system and connective tissue	
Coelomic cavities	
Wells, L. J. — b	M
Endothelia	
Lymphatic system	
Gyllensten, L. J. W. — a	M
Snook, T. — a	M
Connective tissue	
Preto Parvis, Mrs V. — b	V
Clark, H. — d	M
Guggenheim, P. G.; Clements, L. P. and Schlesinger, A. B. — b	M
Snook, T. — b	M
Urogenital system and sex determination	
General subjects	
Matějka, M. — a	
Backhouse, K. M. — b	M
Kanagasuntheram, R. — a, b	M
Kidneys	
Ford, P. — b, c	I
Newstead, J. D. — a	I
Szarski, K. W. — a	I
Cambar, R. — a	J
Fox, H. — e	J
Szarski, K. W. — a	J

Stenger—Haffen, Mrs K. — a	L
Boyer, C. C. — b	M
Nephric ducts and bladder	
Gonads, genital tracts and accessory glands	
Matějka, M. — a	
Mosen, Th.; Vivien, J. and Thiebold, J. J. — a	I
Gonads	
Witschi, E. — f	V
Lepori, N. G. — b	J
Sabbadin, A. — a	J
Segal, S. J. — a	J
Sabbadin, A. — a	K
Marin, G. — a	L
Backhouse, K. M. — b	M
Conaway, C. H. — a	M
Genital tracts and accessory glands	
Allanson—Baxter, Mrs M. — a	M
Dankmeijer, J. — c	M
Gitlin, G. — a	M
Glenister, T. W. — a	M
McAllister, Mrs R. A. C. and Ross, Miss J. R. W. — a	M
Szarski, K. W. — b	M
Sex determination	
Witschi, E. — c	J
Marine, G. — a	L
Reinbold, R. — a	L
Lindahl, P. E. and Sundell, Mrs G. — d	M
Endocrine glands	
General subjects	
Lever, J. D. — a	
Rechenmann, R.; Vivien J. and Schott, J. — a	I
Allanson—Baxter, Mrs M. — a	M
Latimer, H. B. — b	M
Hypophysis (see also under nervous system)	
Thyroid gland	
Thymus	
Leblond, C. P. — a	V
Lever, J. — a	I
Parathyroid glands	
Gonads	
Adrenals	
Witschi, E. — f	V
Crowder, R. E. — a	M
Schaberg, A. — a	M
Pancreas	
Heckerman, R. O. — a	L

Heckerman, R. O. — a	M

f Histo- and cytogenesis

Sauser, G. — b, d	
Bautzmann, H. — b	V
Hirata, A. A. and Schechtman, A. M. — a	L
Hirata, A. A. and Schechtman, A. M. — a	M

8 Growth and differentiation (Invertebrates and Vertebrates)

a Growth

Mitchison, J. M. — a	P
Swann, M. M. — b	P
Legrand, J. J. — c, e	D
Tuft, P. H. — a	D
Voy, A. — a	D
Larambergue, M. de — c	E
Tuft, P. H. — a	V
Lehmann, F. E. — a	J
Ford, E. H. R. — a	M
Hillemann, H. H. — b	M
Robertson, G. G. — b	M

a/b Growth and differentiation

Baffoni, G. M. — a	
Elbers, P. F. — a	E

b Differentiation

Gloor, H. J. — a	D
Lanzavecchia G. — b	L

II. EXPERIMENTAL DEVELOPMENTAL MORPHOLOGY

SUBDIVISION

1 Theoretical problems and general questions
2 Methods and techniques
3 General subjects (asexual development, etc.)
4 Initial development
  a General subjects
  b Primordial germ cells
  c Gameto-, ovo- and spermatogenesis
  d Maturation
  e Ovulation and oviposition
  f Activation and fertilization
  g Parthenogenesis
5 Cleavage and mitosis
  a Cleavage
  b Mitosis
6 Further development of Invertebrates
  a General subjects (including complete development)
  b Topogenesis
  c Determination of „Primitiventwicklung"
  d Development of part of the organism
  e Development of special organ systems (Cf. general subdivision p. 141—143)
  f Histo- and cytogenesis
7 Further development of Vertebrates
  a General investigations
    1 General subjects
    2 Complete development
    3 Partial development
    4 Implantation and placentation
  b Topogenesis
    1 Early development

- 2 Gastrulation and formation of germ layers
- 3 Neurulation
- 4 Formation of neural crest
- 5 First larval development

c Induction, determination, etc.
- 1 Induction
- 2 Determination
- 3 Regulation and organisation

d Development of part of the organism
- 1 Head
- 2 Extremities
- 3 Tail

e Development of special organ systems (Cf. general subdivision p. 141—143)

f Histo- and cytogenesis

8 Growth and differentiation (Invertebrates and Vertebrates)

a Growth

a/b Growth and differentiation

b Differentiation

CHARACTER OF INVESTIGATION

(4) Physical treatment
(5) Chemical treatment
(6) Influence of hormones and vitamins

1 Theoretical problems and general questions

2 Methods and techniques

3 General subjects

(asexual development, etc.)

Bonner, J. T.— a, b	Pl
Cheney, R. H. — c	(5) Pl
Fisher, F. J. F. — a	Pl
Jaffe, L. F. — b	Pl
Herlant—Meewis, Mrs H. — a	C
Gilbert, P. W. — b	I
Sinclair, J. G. — a	M

4 Initial development

a General subjects

Barth, L. G. — b	B
Lovelace, Miss L. R. — b	(4) C
Nijenhuis, E. D. — a	(5) E
Urbani—Mistruzzi, Mrs L. — b	E
Harvey, Mrs E. Browne — a	(4) G
Barth, L. G. — b	H
Leghissa, S. — a	H
Lehman, H. E. — c	J
Pantelouris, E. M. and Waddington, C. H. — b	J
Beatty, R. A. — a	M

b Primordial germ cells

Vannini, E. — d	C
Aubry, Miss R. — a	J
Blackler, A. W. C. — a	J
Bounoure, L. — a	J
Rebert, R. R. — b	J

c Gameto-, ovo- and spermatogenesis

Dan, Mrs J. C. — a	EV
Vannini, E. — d	C
Clavert, J. — a	(6) L
Harrison, R. G. — a, b	M
Macmillan, E. W. — a	M

d Maturation

Dan, K. — d	G
Moricard, R. — a	M

e Ovulation and oviposition

Fukuda, S. — c	D

f Activation and fertilization

Lovelace, Miss L. R. — a	(5) C
Okada, K. — b	C

Colwin, A. L. and Colwin, Mrs L. H. — a	G
Colwin, A. L. and Colwin, Mrs L. H. — a	H
Kille, R. A. — b	I
Cheney, R. H. — b	(5)M
Moricard, R. — b, f	M

g Parthenogenesis

Jaffe, L. F. — a	Pl
Lovelace, Miss L. R. — c	C
Harvey, Mrs E. Browne — a	G
Edwards, R. G. — a	M

5 *Cleavage and mitosis*

a Cleavage

Marsland D. A. — a	
Lovelace, Miss L. R. — a	C
Lovelace, Miss L. R. — d	(4)C
Brookbank, J. W. — b	G
Dan, K. — b	G
Leghissa, S. — a	H
Battle, Miss H. I. — d	(5)I
Colombo, G. — b	(6)J
Sirakami, K. I. — a	J

b Mitosis

Zeuthen, E. — c	P
Costello, D. P.; Henley, Miss C. and Kent, D. E. — a	(4)C
Costello, D. P.; Henley, Miss C. and Kent, D. E. — a	(4)J
Persson, E. — b	L
Hintzsche, E. — b	(5)M

6 *Further development of Invertebrates*

a General subjects (including complete development)

Fauré Fremiet, E.; Hamard, Miss M. and Gauchery, Miss M. — a	P
Tartar, V. — a, b	P
Yagiu, R. — b, c	P
Brøndsted, H. V. — b	A
Bouillon, J. — a	B
Brien, P. L. — a	(4)B
Crowell, P. S. — a	B
Mookerjee, S. and Sanyal, S. — e	B
Sembrat, K. — a	B
Carrano, Miss F. — a	(5)C
Ghirardelli, E. — a	(5)C
Monné, L. — a	C
Wolsky, A. — b	(4/5)C
Bodenstein, D. — c	(6)D
Counce, Miss S. J. and Selman G. G. — a	D
Ede, D. A. — b	D
Fukuda, S. — b, c	D
Goto, T. — a	(5)D
Hama, T. — b	(5)D
Krause, G. — b	D
Lüscher, M. — a	D
Nüesch, H. — a	D
Mori, H. — a	(5)D
Rappaport, R., Jr. — b	D
Takami, T. — b	D
Ulrich, H.— a	(4)D
Wolsky, A. — b	(4/5)D
Hartung, E. W. — b	E
Raven, Chr. P. — a	(5)E
Raven, Chr. P.; Geilenkirchen, W. L. M. and collaborators — b	(5)E
Brien, P. L. — a	(4)F
Schneider, D. — d	F
Cheney, R. H. — a	(5)G
Gustafson, T. and Hörstadius, S. — c	(5)G
Harvey, Mrs E. Browne — b	G
Kriszat, G. — a	G
Brewin, B. I. — a	H
Colwin, A. L. and Colwin, Mrs L. H. — b	H
Hale, L. J. — a	H
Waddington, C. H. — e	(5)H

b Topogenesis

c Determination of „Primitiventwicklung"

Selman, G. G. — a	EV
El Shatoury, H. H. — e	D
Holm, K. Å. — a	D
Krause, G. — a, c	D
Urbani, E. — b	D
Raven, Chr. P. — c	E
Citterio, P. — a	G
Dan, K. — a	G
Hörstadius, S. — a	G
Lallier, R. A. — c	G

Lindahl, P. E. — a	G
Okada, K. — a	G
Runnström, J. A. M. — a	G

d Development of part of the organism

Haget, A. — a	D

e Development of special organ systems

Skin

Sugino, H. — b	(5)C
Kühn, A. — b	D
Schwartz, V. — a	D
Schneider, D. — b	F

Nervous system

Olsson, R. — b	H

Special sense organs

Wolsky, A. — a	D

Skeleton

Okazaki, Miss K. — a	G

Muscular system

Alimentary system

Raven, Chr. P. — c	E

Respiratory organs

Heart, vascular system and blood

Coelomic cavities and endothelia, lymphatic system and connective tissue

Urogenital system and sex determination

Legrand, J. J. — a	D
Pantelouris, E. M. — a	D
Aubry, Miss R. — b	E
Harvey, Mrs E. Browne — d	(4)G

Endocrine glands

Lüscher, M. — b	D

f Histo- and cytogenesis

7 *Further development of Vertebrates*

a General investigations

General subjects

Kuhn O. — c	(5)
Nicholas, J. S. — e	
Rossi, A. — a	
Rugh, R. — b	
Schjeide, O. A. — c	(4)
Kawakami, I. — b	(5)V
Waddington, C. H. — e	(5)V
Battle, Miss H. I. — e	(4)I
Hama, T. — b	(5)I
Lutz, H. and Lutz—Ostertag, Mrs Y. — c	I
Pflugfelder, O. — c	I
Anton, H. J. — b	J
Battle, Miss H. I. — c	(5)J
Brachet, J. L. A. — c	(5)J
Brunst, V. V. — a	J
Cotronei, G. — a	J
Deuchar, Miss E. M. — c	(5)J
Evola—Maltese, Mrs C. — a	(5)J
Goto, T. — a	(5)J
Hama, T. — b	(5)J
Kemp, N. E. — b	J
Lehman, H. E. — c	J
Malamed, S. — a	(5)J
Mangold, O. — a	(4/5)J
Markert, C. L. — d	(5)J
Srivastava, M. D. L. — b	(4)J
Stultz, W. A. — a	J
Takaya, H. — b	J
Urbani—Mistruzzi, Mrs L. — a	J
Vainio, E. T. — a	J
Vintemberger, P. — a	J
Wolsky, A. — b	(4/5)J
Zuccarello—Pollicita, Mrs M. — a	(5)J
Abercrombie, M. — a	L
Amprino, R. M. — c	L
Bagiński, S. — b	(5)L
Bresch, D. — a	L
Clavert, J. — b	L
Evans, H. J. — a	(6)L
Harrison, J. R. — b	L
Horn, E. C. — b	(5)L
Kawakami, Mrs K. I. — b	(5)L
Koecke, U. — b	L
Lutz, H. — b	L
Lutz, H. and Lutz—Ostertag, Mrs Y. — e	(4)L
Lutz, H. and Lutz—Ostertag, Mrs Y. — f	L
Orts Llorca, F. — b	L
Romanoff, A. L. — a	L
Vintemberger, P. — a	L
Beatty, R. A. — a	M
Boyd, J. D. — a	M
Cheney, R. H. — b	(5)M

Courrier, R. — a	(4)M
Dokter H. J. — b	(5)M
Evans, H. J. — a	(6)M
Fitzgerald, L. R. — a	(4)M
Gates, A. H. — a	M
Grobstein, C. — a	M
Nicholas, J. S. — h	(4)M
Nicholas, J. S. — i	M
Sauser, G. — a	M
Sinclair, J. G. — a, d	(5)M

Complete development

Partial development

Battle, Miss H. I. — a	(5)I
Briggs, R. W. and King, T. J. — a	J
Cesare, Miss I. De and Pasquini, P. — a	(5)J
Colombo, G. — b	(6)J
Pasquini, P. and Raunich, L. — c	(4)J
Wilde, C. E., Jr. — d	J
Zwilling, E. — a	L

Implantation and placentation

Courrier, R. — a	(4)M
Glenister, T. W. — d	M

b Topogenesis

Oppenheimer, Miss J. M. — b	I
Gothié, Miss M. M. C. S. — a, b	(5)J
Nakamura, O. — a	J
Okada, T. S. — a	J
Prop, N. — a	J
Wilens, Miss S. W. — a	J
New, D. A. T. — a	L
Schlesinger, A. B. — b	L

Early development

Gastrulation and formation of germ layers

Castigli—Pitotti, Mrs M. — a	I
Malan, Miss M. E. — a	K
Grabowski, C. T. — b	L

Neurulation

Rossini, Miss M. C. — a	J

Formation of neural crest

Nieuwkoop, P. D. — c	J
Rossini, Miss M. C. — b	J
Wilde, C. E., Jr. — a	J
Rawles, Miss M. E. — e	L
Reams, W. M., Jr. — a	L
Rawles, Miss M. E. — e	M

First larval development

Muchmore, W. B. — a	J
Fowler, I. — c	L
Tribe, Miss M. — a	L

c Induction, determination, etc.

Balinsky, B. I. — b	J
Hoessels, Miss E. L. M. J. — a	J
Karasaki, S. — a	(5)J
Nieuwkoop, P. D. — a	J
Takata, Miss C. and Yamada, T. — a	J
Ubbels, Miss G. A. — a	J
Nieuwkoop, P. D. — b	L
Hamilton, W. J. and Harrison, R. J. — a	M
Roosen-Runge, E. C. — a	M

Induction

Masuda, H. — b	
Niu, M. C. — a	
Engländer, H. — a	J
Eyal—Giladi, Mrs H. — a, b	J
Glenister, T. W. — c	J
Hama, T. — a	J
Johnen, Miss A. G. — a, b	J
Kuusi, Miss T. K. — f	(5)J
Lallier, R. A. — b	J
Masui, Y. — a	(5)J
Mifune, S. — a	J
Moore, J. A. — a	J
Nicholas, J. S. — c	J
Okada, T. S. — b	J
Reyer, R. W. — b	J
Rollhäuser—ter Horst, Mrs J. O. B. — a	(5/6)J
Sala, M. — a	J
Schreiber, B. — a	J
Smith, A. S. — a	J
Spofford, W. R. — a	J
Toivonen, S. I. — a, d	J
Vahs, W. — a, b	J
Vahs, W. — d	(4)J
Verdonk, N. H. — b	J
Woellwarth, C. v. — a	J
Hara, K. — a	L
Spratt, N. T., Jr. — d	L
Woerdeman, M. W. — b	L
Felts, W. J. L. — a	M

Grobstein C. — b M
Nicholas, J. S. — d M
Woerdeman, M. W. — b M

Determination

Citterio, P. — a J
Fischiarolo, G. — a J
Haggis, A. J. — a J
Hörstadius, S. — b J
Islam, A. — a J
Lallier, R. A. — c J
Mangold, O. — c J
Raunich, L. — c J
Spofford, W. R. — a J
Woerdeman, M. W. — b L
Grobstein, C. — c M
Woerdeman, M. W. — b M

Regulation and organization

Hay, D.; Vivien, J. and Schott, J. — a I
Boterenbrood, Miss E. C. — a J
Sembrat, K. — e J
Sembratowa, Mrs Z. Opoczynska — a J
Amprino, R. M. — a, b L
Hampé, A. — a L
Kawakami, I. — a M

d Development of part of the organism

Head

Hörstadius, S. — b J
Mangold, O. — b J
Huber, W. — a M

Extremities

François, Y. — a I
Durante, Miss M. — b J
Faber, J. — b J
Harrison, R. G. — a J
Kiortsis, V. — b, c J
O'Brien, J. P. — a J
Piatt, J. — a J
Rieck, A. F. — a (5)J
Thornton, C. S. — c J
Tschumi, P. A. — a J
Wilde, C. E., Jr. — a J
Amprino, R. M. — a L
Cairns, J. M. — b L
Hampé, A. — a L
Saunders, J. W. — c L
Wey—Schué, Mrs M. — b (4)L
Zwilling, E. — c L
Huygnard, C. — a M

Tail

Bijtel, Miss J. H. — a J
Farinella—Ferruzza, Mrs N. — a J
Karasaki S. — b (4)J
Nakamura, O. — b J
O'Brien, J. P. — a J

e Development of special organ systems

Skin

General subjects

Rawles, Miss M. E. — c L
Fraser, A. S. — a M
Hardy, Miss M. H. and Lyne, A. G. — e M
Jacobs, M. S. — a M
Leone, V. — a M
Rawles, Miss M. E. — c M
Wendt, G. G. — a (4)M

Exo-skeleton

Teeth

Brouwer, P. J. and Dankmeijer, J. — a M
Hughes—Glastone, Mrs S. — a M

Hair, horns, nails

Chase, H. B. — b M
Hardy, Miss M. H. and Lyne, A. G. — a, c M
Rawles, Miss M. E. — d M

Feathers

Cairns, J. M. — a L
Kuhn, O. — b L
Saunders, J. W. — d L
Sengel, Ph. J. — b L
Steiner, H. — c L
Watterson, R. L. — f L

Sense organs

Glands

Yanai, T. — b J

Mammae

Pigment cells and patterns

Hama, T. — c I
Mori, Y. — a, b I
Andres, G. — b J
Dalton, H. C. — b J
Dushane, G. — a J
Frost, D. — a J
Hama, T. — c J
Lehman, H. E. — a J

Napp, M. — a	J
Nowakowna, Miss J. — b	(6)J
Hamilton, H. L. — b	L
Rawles, Miss M. E. — a	L
Sengel, Ph. J. — b	L
Steiner, H. — d	L
Willier, B. H. — a, b	L
Willier, B. H. — c	(6)L
Chase, H. B. — b	M
Hardy, Miss M. H. — b	M
Markert, C. L. — b	M
Rawles, Miss M. E. — b	M

Nervous system

General subjects

Levi-Montalcini, Miss R. — b	
Stefanelli, A. — a	V
Gallera, J. — b	J
Spofford, W. R. — b	J
Godina, G. — a, b	L
Hamburger V. — a	L
Levi-Montalcini, Miss R. — a	L
Wenger, B. S. — a	L
Eayrs, J. T. — a	(6)M

Central nervous system

Bergquist, H. — a	V
Baltzer, F.; Chen, P. S.; Henzen, W. and Eymann, H. — b	J
Glenister, T. W. — c	J
Jacobson, D. C. O. — a	J
Kollros, J. J. — d	J
Nieuwkoop, P. D. — a	J
Takaya, H. — a	J
Woellwarth, C. v. — a	J
Birge, W. J. — a	L
Grabowski, C. T. — a	L
McCallion, D. J. — a	L
Nieuwkoop, P. D. — b	L
Wrba, H. — a	M

Brain

Oppenheimer, Miss J. M. — a	I
Boterenbrood, Miss E. C. — a	J
Kollros, J. J. — a	J
Williams, S. C. — a	L
Olsson, R. — b	M

Spinal cord

Chambers, W. W. and Liu, C. N. — a	
Cates, C. H. — a	M

Accessory organs

Paraphysis

Parietal organ

Pineal body

Oksche, A. A. — b	(4)J
Venzke, W. I. — c	M

Hypophysis (see also under endocrine glands)

Eakin, R. M. — a	J
Thurmond, W. — b	J

Ganglia

Cephalic ganglia

Rebert, R. R. — a	J

Spinal ganglia

Strudel, G. — a	L
Cates, C. H. — a	M

Nerves

Sala, M. — b	J
Edds, M. V., Jr — b	M

Cephalic nerves

Spinal nerves

Piatt, J. — a, b	J
Thornton, C. S. — c	J

Para- and sympathetic and intramural nervous system

Para- and sympathetic nervous system

Hammond, W. S. and Yntema, C. L. — a	L
Strudel, G. — a	L

Intramural nervous system

Meninges

Special sense organs

Nasal organ

Haggis, A. J. — a	J

Eye

Balinsky, B. I. — a	J
Baltzer, F.; Chen, P. S.; Henzen, W. and Eymann, H. — b	J
Amprino, R. M. — b	L
Coulombre, A. J. — a	(4)L
Harrison, J. R. — a	L
Reinbold, R. — b	L
Sinclair, J. G. — e	M

Eye (s.s.)

Sembrat, K. — e	J
Sembratowa, Mrs Z. Opoczynska — a	J

Lens

Reyer, R. W. — b	J
McKeehan, M. S. — a	L

Ear	
Benoit, J. A. A. — a	I
Guardabassi, Miss A. — a	J
Harrison, R. G. — b	J
Yntema, C. L. — a	J
Benoit, J. A. A. — a	L
Schlesinger, A. B. — d	M
Lateral sense organs	
Skeleton	
General subjects	
Schreiber, B. — a	J
Kieny, Miss M. A. — a	L
Zahnd, J. P. — a	L
Felts, W. J. L. — a	M
Zaaijer, Miss J. J. P. — a	M
Embryonic temporary endo-skeleton	
Skull and visceral skeleton	
Wagner, G. — a	J
Hammond, W. S. and Yntema, C. L. — b	L
Murray, P. D. F. — b	L
Truncal skeleton	
Holtzer, H. — a	V
Orska, Miss J. — b	(4) I
Fowler, I. — a, b	L
Strudel, G. — b	L
Skeleton of extremities	
Joints	
Muscular system	
General subjects	
Holtzer, H. — b	HV
Konigsberg, I. R. — b	(6) L
Konigsberg, Mrs U. Rothfels — a	M
Skeletal muscles (head, trunk and tail)	
Hamilton, H. L. — c	L
Visceral muscles (head and trunk)	
Muscles of extremities	
Alimentary tract	
General subjects	
Bellairs—Morgan, Mrs M. R. — b	I
Bellairs—Morgan, Mrs M. R. — b	J
Nakamura, O. — d	J
Nakamura, O. and Tahara, Y. — c	J
Mouth- and pharyngeal cavities	
Boschwitz, Miss B. D. — a	J

Intestinal tract	
Weniger, J. P. — a	L
Weniger, J. P. — a	M
Proctodaeum	
Salivary glands	
Liver	
Croisille, Y. — a	
Filogamo, G. — a	L
Pancreas	
Kropp, B. N. — b	L
Respiratory organs	
General subjects	
External gills	
Durante, Miss M. — a	J
Wilde, C. E., Jr. — a	J
Internal gills	
Lungs and larynx	
Wolff, Mrs Em. — a	L
Air-bladder	
Heart, vascular system and blood	
General subjects	
Boerner, Mrs D. — a	M
Heart	
Richter, K. M. — a	(5)
Albright, J. F. — b	L
Wrba, H. — a	M
Arterial and venous system	
Mintz, Miss B. — a	L
Stephan, Fr. — b	L
Capillary system	
Blood	
Brodowa, Mrs Ch. Grabie — a	(6) J
Manelli, E. — b	J
Coelomic cavities and endothelia, lymphatic system and connective tissue	
Coelomic cavities and endothelia	
Lymphatic system	
Gyllensten, L. J. W. — a	(6) M
Connective tissue	
Menschik, Z. — b	M
Urogenital system and sex determination	
General subjects	
Groenendijk—Huijbers, Mrs M. M. — a	L
Reinbold, R. — a	(6) L
Wolff, Mrs Em. — a	L
Torrey, T. W. — a	M

Kidneys

Cambar, R. — a, b	J
Fox, H. — a, c	J
Fox, H. — b	(5)J
Manelli, E. — c	J
Shin-Iké, T. — a	J
Bons, J. — a	K

Nephric ducts and bladder

Bijtel, Miss J. H. — b	J
Manelli, E. — c	J

Gonads

Kagan, B. M. — a	
Salzgeber, Miss B. — c	(5)
Vannini E. — b	V
Witschi, E. — f	V
D'Ancona, U. — a	I
Amanuma, A. — a	J
Bounoure, L. — a	J
Iwasawa, H. — a	(6)J
Iwasawa, H. — b	(5)J
Nobili, R. — a	J
Takamoto, K. — a	J
Vannini, E. — c	J
Limborgh, J. van — a	L
Marin, G. — a	L
Stenger—Haffen, Mrs K. and Wolff, Et. — b	L
Weniger, J. P. — a	L
Burns, R. K. — b	(6)M
Chapman, A. O.; Holyoke, E. A. and Latta, J. S. — b	M
Gaillard, P. J. — a	M
Hampé, A. — b	M
Weniger, J. P. — a	M

Genital tracts

Lutz—Ostertag, Mrs Y. — a	L
Burns, R. K. — b	(6)M
Hampé, A. — b	M

Accessory glands

Sex determination

Salzgeber, Miss B. — a	(4/5)
Okada, Y. K. — b	I
Querner, H. — b	I
Yamamoto, T. — b	I
Asayama, S. — a	(6)J
Chang, C. Y. — a	(6)J
Chang, C.Y . — b, d	J
Gallien, L. — a	J
Iwasawa, H. — a	(6)J
Lugli, Miss L. and Romani, Miss M. L. — a	(6)J
Miyamori—Yamamoto, Mrs H. — a	(6)J
Witschi, E. — c	J
Witschi, E. — d	(6)J
Hampé, A. — b	(6)L
Limborgh, J. van — b	L
Lutz—Ostertag, Mrs Y. and Wolff, Et. C. — b	(6)L
Marin, G. — a	L
Salzgeber, Miss B. and Wolff, Et. — b	(4)L
Scheib—Pfleger, Mrs D. — a	(6)L
Burns, R. K. — a	(6)M

Endocrine glands

General subjects

Kagan, B. M. — a	
Lever, J. D. — a	
Dossel, W. E. — c	L

Hypophysis (see also under nervous system)

Blount, R. F. — b	J

Thymus

Thyroid gland

Dossel, W. E. — b	L
Tixier—Vidal, Mrs A. — a	L
Brouwer, P. J. and Dankmeijer, J. — a	M

Parathyroid glands

Gonads

Adrenals

Vannini, E. — b	V
Witschi, E. — f	V
Gennaro, J. F., Jr. — b	M
Wells, L. J. — a	(6)M

Pancreas

f Histo- and cytogenesis

Clark, H. and Shannon, J. E. — b	
Sauser, G. — e	
Stefanelli, A. — a	V
Lehman, H. E. — b	(4/5)J
Wurmbach, H. — b	J
Levi, G. L. — b	HV
Abercrombie, M.; Santler, Miss J. E. and Karthauser, Miss H. M. — b	L
González Guzmán, I. — b	L
Wurmbach, H. — b	L
Zwilling, E. — b	L
Grobstein, C. — a	M
Hintzsche, E. — c	(4)M

8 Growth and differentiation (Invertebrates and Vertebrates)

a Growth

Altschul, R. — a	
Moment, G. B. — b	J
Oksche, A. A. — a	(6)J
Wurmbach, H. — b	J
Levi, G. L. — a	HV
Godina, G. — b	L
Wurmbach, H. — b	L
Harrison, G. A. — a	(4)M
Hintzsche, E. — b	(5)M
Lyne, A. G. — b	M

a/b Growth and differentiation

Sauser G. — e	
Wurmbach, H. — a	(5/6)V
McKeehan, M. S. — a	L
Willier, B. H. — b	L

b Differentiation

Briggs, R. W. and King, T. J. — a	J
Kocher, W. — b	J
Rose, S. M. — a	J
Wilde, C. E., Jr. — b, d	J
Clayton—Freedman, Mrs R. M.; Feldman, M. and Oliver—Yates, Mrs, H. B. — c	L
Zwilling, E. — a	L
Markert, C. L. — b	M

III. PHYSIOLOGY OF DEVELOPMENT

SUBDIVISION

1 *Theoretical problems and general questions*
2 *Methods and techniques*
3 *General subjects* (asexual development, etc.)
4 *Initial development*
  a General subjects
  b Primordial germ cells
  c Gameto-, ovo- and spermatogenesis
  d Maturation
  e Ovulation and oviposition
  f Activation and fertilization
  g Parthenogenesis
5 *Cleavage and mitosis*
  a Cleavage
  b Mitosis
6 *Further development of Invertebrates*
  a General subjects (including complete development)
  b „Primitiventwicklung" (including early development)
  c Induction and determination
  d Development of part of the organism
  e Development of special organ systems
    (Cf. general subdivision p. 141—143)
  f Histo- and cytochemistry
  g Serological and immunological studies
7 *Further development of Vertebrates*
  a General investigations
    1 General subjects
    2 Complete development
    3 Later development
    4 Implantation and placentation
    5 Development of behaviour

- b „Primitiventwicklung”
  - 1 Early development
  - 2 Gastrulation
  - 2/3 Gastrulation and neurulation
  - 3 Neurulation
  - 4 Development of neural crest
- c Induction and determination, etc.
  - 1 Induction
  - 2 Determination
  - 3 Regulation and organisation
- d Development of part of the organism
  - 1 Head
  - 2 Extremities
  - 3 Tail
- e Development of special organ systems (Cf. general subdivision p. 141—143)
- f Histo- and cytochemistry
- g Serological and immunological studies

8 Growth and differentiation (Invertebrates and Vertebrates)

- a Growth
- a/b Growth and differentiation
- b Differentiation

9 Nutrition of embryo (Invertebrates and Vertebrates)

CHARACTER OF INVESTIGATION

- (1) Metabolism and respiration
- (2) a) Biochemistry, b) Histochemistry, c) Cytochemistry
- (3) Physical properties
- (4) Physical treatment
- (5) Chemical treatment
- (6) Influence of hormones and vitamins

1 Theoretical problems and general questions

2 Methods and techniques

Csapo, A. I. — e

3 General subjects

(asexual development, etc.)

Ranzi, S. — b	
Jaffe, L. F. — a	Pl
Rasmont, R. — a	A
Herlant—Meewis, Mrs H. — a	C
Hanaoka, K. I. — a	D
Urbani, E. — d	D
Csapo, A. I. — f	M
Hiraiwa, Y. K. — a	M
Pincus, G. — a	M
Talbert, G. B. — a	M
Young, W. C. — a, b	M

4 Initial development

a General subjects

Lehmann, F. E. — c	EV
Ortolani, Miss G. — a	EV
Barth, L. G. — b	B
Weber, R. — b	C
Geilenkirchen, W. L. M. — a	(1)E
Nijenhuis, E. D. — a	(5)E
Nijenhuis, E. D. — b	(2c)E
Verdonk, N. H. — a	(1)E
Borei, H. G. — b	(1)G
Cheney, R. H. — d	(1/5)G
Barth, L. G. — b	H
Aketa, K. — b	(2a)I
Grodziński, Z. — c	(2c/3)I
Ishida, J. — a	(1)I

Oikawa, Miss I. — a (3)I
Sundell L. E. — a (1/2c)I
Minganti, A. — b J
Sundell, L. E. — a (1/2c)J
Weber, R. — b J
Baiocchi, O.; Moricard, R. and Gothié, Miss M. M. C. S. — a (1)M
Hart, D. S. — a M

b Primordial germ cells

c Gameto-, ovo- and spermatogenesis

Tyler, A. — c EV+V
Urbani, E. — c (2c)EV
Bielańska—Osuchowska, Mrs Z. — a (2b)D
Lerma, B. de — a D
Reggiani, Miss M. P. — a (2c)D
Battaglia, B. — a (2c)E
Ranzoli, F. — a E
Bernstein, G. S. — b G
Ficq, Mrs A. A. — c (1)G
Vannini, E. — a (2c)G
Ranzoli, F. — a H
Vakaet, L. C. — a (2c)I
Vannini, E. — a (2c)I
Yamamoto, K. — b I
Bernstein, G. S. — b J
Ficq, Mrs A. A. — c (1)J
Kemp, N. E. — a J
Rostand, J. — c J
Thomason, Miss D. — c J
Vannini, E. — a (2c)J
Sounhein, E. — a L
Bishop, D. W. — a (1)M
Bishop, D. W. — b M
Clegg, E. J. — a M
Gothié, Miss M. M. C. S. — c M
Kihlström, J. E. and Lindahl, P. E. — a M
Lindahl, P. E.; Kihlström, J. E. and Nilsson, Miss A. E. A. — c M
Macmillan, E. W. — b M
Urbani, E. — c (2c)M

d Maturation

Humphries, A. A. — a J
Gothié, Miss M. M. C. S. and Moricard, R. — f (6)M

Gohié, Miss M. M. C. S. — g M
Moricard, R. — e M

e Ovulation and oviposition

Fukuda, S. — c D
Gates, A. H. — a M
Strauss F. — a M

f Activation and fertilization

Benazzi, M. — a C
Dan, Mrs J. C. — b E
Aketa, K. — a (1/2a)G
Borei, H. G. — a, b (1)G
Colwin, A. L. and Colwin, Mrs L. H. — a G
Endo, Y. — a (2c)G
Hori, R. — b (3)G
Immers, J. — a (1/2a)G
Ishikawa, M. and Sugiyama, M. — a G
Nakano, E. — b (2a)G
Nakano, E. — c G
Numanoi, H. — a (2a)G
Spiegel, M. S. — a G
Swann, M. M. — a G
Tyler, A. — a G
Colwin, A. L. and Colwin, Mrs L. H. — a H
Hori, R. — a (3)I
Kanoh, Y. — a, b I
Yamamoto, K. — a I
Yamamoto, T. — a I
Bernstein, G. S. — a J
Beatty, R. A. — c M
Chang, M. C. — a, b M
Edwards, R. G. — b M
Gates, A. H. — a M
Hiraiwa, Y. K. — a M
Ludwig, K. S. — b (1)M

g Parthenogenesis

Ishikawa, M. and Sugiyama, M. — a G
Witschi, E. — a (1)J
Schlesinger, A. B. — a (2c/3)L
Chang, M. C. — c M

5 *Cleavage and mitosis*

a Cleavage

Marsland, D. A. — b
Marsland, D. A. — c (4/5)
Berg, W. E. — a (1/2c)E

Urbani—Mistruzzi, Mrs L. — b	E
Butros, J. M. — a	(5)G
Dan, K. — b	G
Dan, K. — c	(2a)G
Kuno, M. — a	G
Nakano, E. — b	(2a)G
Okazaki, R. — b	(2a/3)G
Swann M. M. — a	G
Zeuthen, E. — a	(1)G
Berg, W. E. — a	(1/2c)H
Okazaki, R. — b	(2a/3)J
Ludwig, K. S. — b	(1)M
Chang, M. C. — a	M

b **Mitosis**

Swann, M. M. — b	P
Agrell, I. P. S. — b	(2a)L

6 *Further development of Invertebrates*

a **General subjects (including complete development)**

Dainty, J. — a	(3)
Cigada Leonardi, Mrs M. — a	(1)EV
Reverberi, G. — a	EV
Kinosita, H. — a	(3)P
Mookerjee, S. — b	P
Brøndsted, H. V. — b	A
Miller, J. A., Jr.— b	B
Herlant—Meewis, Mrs H. — a	(6)C
Palazzo, Miss F. — a	(2c)C
Sugino, H. — a	(1)C
Bodenstein, D. — b	(1/6)D
Chen, P. S. — c	(2a)D
Crisp, D. J. — a	D
Engelmann, F. — a	(6)D
Fukuda, S. — b, c	D
Goldman, A. S. — a, b	(1/4)D
Hadorn, E. — c	(2a)D
Henke, K. — b	D
Kato, M. — a	D
Lerma, B. de — a	(2a)D
Pflugfelder, O. — a	(1/6)D
Rae—Wickham, Mrs C. A. — a	(6)D
Seidel F. — b	D
Shulov, A. — a	D
Shulov, A. — b	(1/2c)D
Takami, T. — a	D
Geilenkirchen, W. L. M. — a	(1)E
Heide, H. v. d. — a	(2c)E
Kawakami, Mrs K. I. — c	(1)E
Leun, A. A. J. v. d. — a	(2c)E
Mancuso, V. — b	(1/2b)E
Peet, Miss H. M. — a	E
Peet, Miss H. M. — b	(5)E
Verdonk, N. H. — a	(1)E
Schneider, D. — a	F
Agrell, I. P. S. — a	(1)G
Bäckström, S. A. A. — a	(1)G
Brookbank, J. W. — a	(1)G
Fujii, T. — b	(1)G
Gustafson, T. and Hörstadius, S. — c	(5)G
Holter, H. — a	(1/2c)G
Immers, J. — a	(1/2a)G
Kriszat, G. — a	G
Persson, H. — a	(1)G
Mancuso, V. — a	(1/2b)H
Waddington, C. H. — e	(5)H

b **„Primitiventwicklung" (including early development)**

Spiegel, M. S. — b	A
Pasteels, J. — c	(2c)E
Cheney, R. H. — d	(1/5)G
Gustafson, T. — a	G
Okazaki, Miss K. — b	G
Pasteels, J. — c	(2c)G
Spiegel, M. S. — b	G
Tyler, A. — b	G

c **Induction and determination**

Hörstadius, S. — a	G
Hultin, J. M. T. — a	(1)G
Ranzi, S. — a	G
Runnström, J. A. M. — a	G

d **Development of part of the organism**

e **Development of special organ systems**

Skin

Nervous system

Hubl, H. — b	C

Special sense organs

Skeleton

Muscular system

Alimentary tract

Respiratory organs

Heart, vascular system and blood

Coelomic cavities and endothelia, lymphatic system and connective tissue

Urogenital system and sex determination

Lallier, R. A. — d	C
Legrand, J. J. — a	D
Pantelouris, E. M. — a	D

Endocrine glands

Jones, B. M. — a	D
Pflugfelder, O. — e	D

f Histo- and cytochemistry

Fautrez, J. C. — a	
Gustafson, T. — d	(1)
Hajra, B. — a	P
Holter, H. — b	P
Weber, R. — a	C
Fautrez—Firlefyn, Mrs N. J. — a	D
Tahmisian, T. N. — a	(4)D
Baltus, Miss E. — a	G

g Serological studies

El Shatoury, H. H. — c	D
Brookbank, J. W. — b	G
Tyler, A. — d	G

7 *Further development of Vertebrates*

a General investigations

General subjects

Castigli—Pitotti. Mrs M. — c	(1)
Dainty, J. — a	(3)
Hartwig, H. — a	(6)
Kuhn, O. — a	(6)
Schechtman, A. M. — b	
Schjeide, O. A. — c	(4)
Cigada Leonardi, Mrs M. — a	(1)V
Waddington, C. H. — e	(5)V
Devillers, Ch. — a	(1)I
Minamori, S. — b	(2a/4)I
Tracy H. C. — c	I
Winblad, J. — b	I
Zotin, A. I. — a	I
Bäckström, S. A. A. — a	(1)J
Barth, L. G. — a	(1/2a)J
Barth, L. G. — c	(1)J
Barth, Mrs L. J. — a	(1/2a)J
Barth, Mrs L. J. — b	(1)J
Bondi, C. — b	J
Chen, P. S. — b	(1)J
Cigada Leonardi, Mrs M. — b	J
Dent, J. N. — a	(1)J
Elsdale, T. and Sirlin, J. L. — a	(1)J
Ficq, Mrs A. A. — a	(5)J
Gregg, J. R. — a, b	(1)J
Hishida, T. and Tomita, H. — c	J
Hunt, E. L. — b	(1)J
Kemp, N. E. — b	(1)J
Krugelis—MacRae, Mrs E. J. — a, b	(2a)J
Lallier, R. A. — a	(2a)J
Løvtrup, S. — b	(1/4)J
Nace, G. W. — a	(2a)J
Oikawa, Miss I. — b	(1)J
Peters, Th. — a	(4)J
Rappaport, R., Jr. — a	J
Raunich, L. — g	(2b)J
Ricciarelli, Miss G. M. — a	(1)J
Rocca, E. — a	(2a/3)J
Rudnick, Miss D. — a	(1)J
Selman, G. G. — b	(3)J
Stultz, W. A. — a	J
Tiedemann, H. — a	(2a)J
Tiedemann—Waechter, Mrs H. — a	(2a)J
Urbani, E. — a, f	(1)J
Zeller, Ch. — a	(1)J
Clark, H. — a	(1)K
Clark, H. — a	(1)L
Ebert, J. D.; Johnson, B. H. and Mun, A. M. — c	(2a)L
Ebert, J. D. and Dawson, M. A. — d	(1)L
Emanuelsson, H. — a	(2b)L
Emanuelsson, H. — b	(1)L
Fraser, R. C. — a	L
Gorini, Miss I. — a	(1)L
Hamilton, H. L. — a	(1)L
Henke, K. — b	L
Horn, E. C. — a	(1/2a)L
Hunt, E. L. — a	(1)L
Knight, Miss P. F. — b	L
Konigsberg, I. R. — a	(1/6)L
Lanzavecchia, G. — a	(1)L
Romanoff, A. L. — a	L
Rudnick, Miss D. — a	(1)L
Sounhein, E. — a	L

Watterson, R. L. — d	(6)L
Wolff, Mrs Em. — b	(1)L
Adams, Miss E. C.; Hertig, A. T. and McKay, D. G. — b	(2b)M
Alexander, G. — a	M
Caspari, E. W. — a	M
Csapo, A. I. — f	M
Fitzgerald, L. R. — a	(4)M
Fujii, T. — b	(1)M
Gates, A. H. — a	M
Gobetto, A. — a	(2b)M
Gothié, Miss M. M. C. S. — d	(1)M
Greenwald, G. S. — a	(6)M
Hintzsche, E. — a	(1)M
Miller, J. A. — a, c	(1)M
Moog, Miss F. — a	(1)M
Mulnard, J. — a	(1/2b)M
Nicholas, J. S. — f	(1/2b)M
Petry, G. — a	M
Ringertz, N. R. — a	(1)M
Roncoroni, G. — b	(2a)M
Smith, A. S. — b	M
Seidel, F. — a	M
Waelsch, Mrs S. G. — b	M

Complete development

Later development

Fitzgerald, L. R. — b	(1)M

Implantation and placentation

Amoroso, E. C.; Dempsey, E. W. and Wislocki, G. B. — a	(2b)M
Böving, B. G. — b	M
Burgos, M.; Wislocki, G. B.; Ellis, R. and Weiss, L. P. — a	(2b)M
Corner, G. W. — b, c	M
Csapo, A. I. — a, c, e	M
Csapo, A. I. — b	(2a)M
Csapo, A. I. — d	(6)M
Flexner, L. B. — b	M
Greenwald, G. S. — b	M
Hamilton, W. J. and Harrison, R. J. — b	M
Harrison, R. J. and Harrison Matthews, L. — d	M
Harrison, R. J. — e	M
Hoek, J. v. d. — a	(2b)M
Krassowski, T. — a	(1)M

McCafferty, R. E. — a	M
Moghe, M. A. — b	M
New, D. A. T. — b	M
Pincus, G. — a	M
Reynolds, S. R. M. — b	M
Smith, A. S. — b	M
Turner, C. J. — b	M

Development of behaviour

Batty, Th.; Tracy, H. C. and Winblad, J. — a	I
Harris, J. E. and Whiting, H. P. — a	I
Tracy, H. C. — b	I
Fankhauser, G. — e	J
Holtzer, H. — c	J
Janosky, L.; Wenger, Mrs E. L. and Roofe, P. G. — a	J
Keller, L.; Wenger, Mrs E. L. and Roofe, P. G. — a	J
Roofe, P. G. and Wenger, Mrs E. L. — a	J
Holtzer, H. — c	L
Hooker, D. — a, b	M
Hooker, D. and Humphrey, Miss T. — c	M
Humphrey, Miss T. — a	M

b „Primitiventwicklung" (including early development)

Hishida, T. and Nakano, E. — a	(1)I
Nakano, E. — a	(1)I
Bautzmann, H. — a	J
Brachet, J. L. A. and Pasteels, J. — b	(2c)J
Cohen,, A. I. — a	(1)J
Ikushima, N. — a	(3)J
Ikushima, N. — b	J
Thomason, Miss D. — a	J
Adams, Miss E. C.; Rock, J.; Mulligan, W. J. and Hertig, A. T. — a	(2b)M
Dalcq, A. M. — a	(2c)M
Edwards, R. G. — c	(1)M
Konopacka, Mrs B. — b	(2b/c)M
Skreb, N. — a	(2c)M
Spratt, N. T., Jr. — a	(1)L
Spratt, N. T., Jr. — b	(1/2b)L
Turner, C. J. — a	(2b)M

Eearly development

Gastrulation

Neurulation

Development of neural crest

c Induction and determination, etc.

Induction

Niu, M. C. — a
Ficq, Mrs A. A. — b J
Hama, T. — a (2b)J
Hayashi, Y.; Takata, K. and Yamada, T. — a J
Holtfreter, J. K. F. — a J
Johnen, Miss A. G. — b J
Kuusi, Miss T. K. — a, b, c, e J
Mifune, S. — b (2a)J
Okazaki, R. — a J
Saxén, L. O. and Toivonen, S. I. — b J
Vahs, W. — c (2b)J
Woerdeman, M. W. — c J
Woerdeman, M. W. — c L
Hayashi, Y.; Takata, K. and Yamada, T. — a M

Determination

Ranzi, S. — a J

Regulation and organization

Tamanoi, I. — a (2a)J
Kawakami, I. — a M

d Development of part of the organism

Head

Extremities

Dalcq, A. M. — b (2c)
Tempelton, M. — a (2b)L
Hinrichsen, K. — a (2b)M

Tail

Dalcq, A. M. — b (2c)

e Development of special organ systems

Skin

General subjects

Exo-skeleton

Teeth

Hinrichsen, K. — a (2b)M

Hair, horns, nails

Feathers

Sense organs

Glands

Cohn, S. A. — b (2b/c)M

Mammae

Pigment cells and patterns

Hama, T. — c (2c)I
Mori, Y. — b (2c)I
Hama, T. — c (2c)J
Hishida, T. and Tomita, H. — c J
Lehman, H. E. — a (1)J
Ebert, J. D. — b (2b)L
Hamilton, H. L. — b L
Saunders, J. W. — b L
Saunders, J. W. — b M

Nervous system

General subjects

Tracy, H. C. — b I
Roofe, P. G. and Wenger, Mrs E. L. — a (2c)J
Lavarack, J. O. — a (2b)L
Wenger, B. S. — a (2c)L
Preto Parvis, Mrs V. — a (2c)M
Tomlinson, J. D. W. — a M

Central nervous system

Shen, S. C. — a (2c)V
Holtzer, H. — c J
Janosky, L.; Wenger, Mrs E. L. and Roofe, P. G. — a (2b)J
Keller, L.; Wenger, Mrs E. L. and Roofe, P. G. — a (2b)J
Prop, N. — b (2b)J
Stultz, W. A. — a J
Holtzer, H. — c L

Brain

Milin, R. — a
Oksche, A. A. — c V
Assenmacher, I. — a L
Ariëns Kappers, J. — a (2b)M
Flexner, L. B. — a (1)M
Preto Parvis, Mrs V. — d (2b)M
Ringertz, N. R. — b (2b)M

Spinal cord

Accessory organs

Paraphysis

Parietal organ

Pineal body

Pflugfelder, O. — c I
Amprino, R. M. L
Venzke, W. I. — a L

Hypophysis (see also under endocrine glands)

Assenmacher, I. — a L

Ganglia	
Nerves	
Cephalic nerves	
Spinal nerves	
Tempelton, M. — a	L
Para- and sympathetic and intramural nervous system	
Para- and sympathetic nervous system	
Guth, L. — a	M
Intramural nervous system	
Special sense organs	
Nasal organ	
Eye	
Harrison, J. R. — a	L
Eye (s.s.)	
Takisawa, A. — b	(2b)J
Lens	
Bon, W. F. and Cate, G. ten — a	(2a)J
Bon, W. F. and Cate, G. ten — a	(2a)L
Kane, R. E. — a	(2a)L
Ear	
Bergeijk, W. A. — a	J
Skeleton	
General subjects	
Batty, Th. — c	I
Kieny, Miss M. A. — a	(1)L
Preto Parvis, Mrs V. and Roncoroni, G. — c	(2c)M
Embryonic temporary endo-skeleton	
Skull and visceral skeleton	
Truncal skeleton	
Lavarack, J. O. — a	(2b)L
Skeleton of extremities	
Joints	
Muratori, G. — a	(2b)L
Muscular system	
General subjects	
Batty, Th. — c	I
Herrmann, H.; Konigsberg, I. R. and Samuels, A. J. — a	(2b)L
Herrmann, H. and Konigsberg, Mrs U. Rothfels — b	L
Nicholas, J. S. — b	(1)M
Villafranca, G. W. de — a	(1)M
Villafranca, G. W. de — b	(2a)M

Skeletal muscles (head, trunk and tail)	
Visceral muscles (head and trunk)	
Muscles of extremities	
Alimentary tract	
General subjects	
Mouth- and pharyngeal cavity	
Sehe, Ch. T. — a	V
Instestinal tract	
Batty, Th. — b	I
Coulombre, A. J. — b	(2b)L
Sigot, M. — a	(1/2a)L
Konopacka, Mrs B. — a	(2b)M
Proctodaeum	
Salivary glands	
Krańska, Mrs M. K. — a	(2b)M
Liver	
Armstrong, P. B. — a	I
Flexner, L. B. — a	(1)M
Padykula, Miss H. A. — a, b	(2b)M
Respiratory organs	
General subjects	
External gills	
Internal gills	
Lungs and larynx	
Wolff, Mrs Em. — a	L
Gruenwald, P. — c	M
Reynolds, S. R. M. — c	M
Heart, vascular system and blood	
General subjects	
Heart	
Grodziński, Z. — a	(1)I
Duffey, L. M. — a	L
Ebert, J. D. and Ruth, R. F. — a	(2a)L
Sangvichien, S. — a	L
Sippel, T. O. — a	(1)L
Chang, M. C. — d	(4)M
Arterial and venous system	
Batty, Th. — c	I
Muratori, G. — b	(2b)L
Reynolds, S. R. M. — a, c, d	M
Capillary system	
Blood	
Urbani, E. — e	V
Hayashi Y.; Takata, K. and Yamada, T. — b	(2b)J
Beard, R. G. — a	L
Knight, Miss P. F. — a	L
Venzke, W. I. — b	L

Coelomic cavities and endothelia, lymphatic system and connective tissue

Coelomic cavities and endothelia

Lympathic system

Connective tissue

Preto Parvis, Mrs V. — b (2b)V
Clark, H. — c (1)M
Menschik, Z. — b M

Urogenital system and sex determination

General subjects

Dalcq, A. M. — b (2c)
Wolff, Mrs Em. — a L
Backhouse, K. M. — b M
Torrey, T. W. — a (2b)M

Kidneys; nephric ducts and bladder

Jaffee, O. C. — a (1/2b)J
Johnson, F. R. — a M

Gonads

Stenger—Haffen, Mrs K. —c (1)L
Vogel, N. W. — a (6)L
Backhouse, K. M. — b M

Genital tracts

Scheib—Pfleger, Mrs D. — a (2b)L
Allanson—Baxter, Mrs M. — a M
Csapo, A. I. — a M
Gothié, Miss M. M. C. S. — h (1)M

Accessory glands

Segal, S. J. — d

Sex determination

Endocrine glands

General subjects

Pujiula, J. — b
Segal, S. J. — d
Willier, B. H. — d
Witschi, E. — f V
Querner, H. — a I
Rechenmann, R.; Viviven, J. and Schott, J. — a I
Konigsberg, I. R. — a L
Allanson—Baxter, Mrs M. — a M
Blount, R. F. — c M
Deth, J. H. M. G. van — a M

Hypophysis (see also under nervous system)

Nowakowna, Miss J. — a V
Radecka, Mrs E. Erdman — a V
Sembrat, K. — c V
Blount, R. F. — a, b J
Thurmond, W. — a J
Albright, J. F. — a (2a)L
Dossel, W. E. — a L
Tixier—Vidal, Mrs A. — b L
Vogel, N. W. — a L
Watterson, R. L. — d L
Segal, S. J. — c M

Thymus

Thyroid gland

Nowakowna, Miss J. — a V
Radecka, Mrs E. Erdman — a V
Sembrat, K. — c V
Brodowa, Mrs Ch. Grabie — a J
Kościelski, B. — a J
Dossel, W. E. — a, b L

Parathyroid glands

Gonads

Adrenals

Leroy, P. J. M. — a L
Benirschke, K. — a M
Wells, L. J. — a (6)M

Pancreas

f Histo- and cytochemistry

Fautrez, J. C. — a
Fedoroff, S. — a (4)
Gustafson, T. — d (1)
Sauser, G. — b
Kanoh, Y. and Yamamoto, T. S. — c I
Berg, G. G. — a (1)J
Boell, E. J. B. — a J
Clark, H. and Goldie, M. — e J
Deuchar, Miss E. M. — a J
Mookerjee, S. — a J
Preto Parvis, Mrs V. — e J
Vanderhaeghe—Hougardy, Mrs F. — a J
Weber, R.— a J
Bose, A. and Mookerjee, S. — a (4)L
Clark, H. and Goldie, M. — e L
Gonzälez Guzmân, I. — b L
Lavarack, J. O. — a L
Mookerjee, S. — a L
Berg, G. G. — a (1)M
Chiquoine, A. D. — a M
Graumann, W. — a M
Johnson, F. R. — b M
Martin, B. F. — a M

Nicholas, J. S. — f, g	M
Preto Parvis, Mrs V. — e	M

g Serological and immunological studies

Segal, S. J. — d	
Clayton—Freedman, Mrs R. M. — a, d	J
Manelli, E. — a	J
Nace, G. W. — a, b	J
Tamanoi, I. — a	J
Vainio, E. T. — b, c	J
Albright, J. F. — a	L
Billingham, R. E. — a	L
Ebert, J. D. — b	L
Ebert, J. D. and Ruth, R. F. — a	L
Gonzälez Guzmán, I. — b	L
Langman, J. — e	L
Medawar, P. B. — a	L
Mun, A. M. — a	L
Schjeide, O. A. — a, b	L
Veenstra—Trollope, Mrs E. M. — a	L
Weller, E. M. — a	L
Billingham, R. E. — a	M
Bouman, F. and Langman, J. — a	M
Brambell, F. W. R. — a	M
Halliday, R. — a	M
Hemmings, W. A. — a	M
Kelly, W. A. — a	M
Medawar, P. B. — a	M
Morris, L. C. — a	M
Short, B. F. — a	M
Sobey, W. R. — a	M

8 *Growth and differentiation*

(Invertebrates and Vertebrates)

a Growth

Dainty, J. — a	(3)
Heim, W. G. — a	
Milin, R. — a	(6)
Mitchison, J. M. — a	P
Swann, M. M. — b	P
Tuft, P. H. — a	D
Gustafson, T. — b	(2a/6)G
Tuft, P. H. — a	V
Baxter, E. W. — c	I
Buser—Lahaye, Mrs J. — b	(6)I
Andres, G. — a	J
Gustafson, T. — b	(2a/6)J
Rappaport, R., Jr. — a	J
Andres, G. — a	L
Harris, M. — a, b	(2a)L
Beatty, R. A. — c	M
Kuusi, Miss T. K. — d	(5)M

a/b Growth and differentiation

Elbers, P. F. — a	E

b Differentiation

Sanyal, S. — a	B
Tahmisian, T. N. — a	(4)D
Billett, F.; Sirlin, J. L. and Waddington, C. H. — a	(1)J
Clayton—Freedman, Mrs R. M. — a	J
Løvtrup, S. — a	(2b/4)J
Prop, N. — b	(2b)J
Wilde, C. E., Jr. — b	(2a)J
Markert, C. L. — c	L
Clayton—Freedman, Mrs R. M. — d	M
Markert, C. L. — c	M

9 *Nutrition of embryo*

(Invertebrates and Vertebrates)

Baxter, E. W. — c	I
Grodziński, Z. — c	I
Sundell, L. E. — b	I
Krugelis—MacRae, Mrs E. J. — a	(2a)J
Sundell, L. E. — b	J
Byczkowska—Smyk, Mrs W. — a	L
Harrison, J. R. — a	L
Herrmann, H. and Konigsberg, Mrs U. Rothfels — b	(6)L
Knight, Miss P. F. — b	L
Schlesinger, A. B. — a	L
Simon, Mrs D. — a	L
Spratt, N. T., Jr. — a	L
Witschi, E. — f, g	L
Gould, R. P. — a	M
Menschik, Z. — a	M

IV. DEVELOPMENT AND GENETICS

SUBDIVISION

1 Theoretical problems and general questions
2 General genetical studies
  a General studies
  b Heteroploidy
  c Hybridization
  d Chimaera
  e Merogony
3 Analysis of influence of special genes and mutants
  a Special genes and mutants
  b Lethal factors
4 Phenocopies

CHARACTER OF INVESTIGATION

(1) Metabolism and respiration
(2) a) Biochemistry, b) Histochemistry, c) Cytochemistry
(4) Physical treatment
(6) Influence of hormones and vitamins

1 Theoretical problems and general questions

Landauer, W. — e	L

2 General genetical studies

a General studies

Tartar, V. — a	P
Benazzi, M. — a	C
Lepori, N. G. — a	C
Papi, F. — a	C
Barigozzi, C. — b	D
Blackler, A. W. C. — b	D
Fukuda, S. — b	D
Hadorn, E. — c	(2a)D
Henke, K. — c	D
Legrand, J. J. — a	D
Poulson, D. F. — b	D
Sigot, A. — a	D
Baxter, E. W. — b	I
Colombo, G. — a	J
Humphrey, R. R. — c, f	J
Witschi, E. — c	J
Romanoff, A. L. — b	L
Beatty, R. A. — b	M
Braden, A. W. H. — a	M
Caspari, E. W. — a	M
Harrison, G. A. — a	(4)M
Huber, W. — a	M
McNutt, C. W. — b	M
Waelsch, Mrs S. G. — a	M

b Heteroploidy

Benazzi, M. — a	C
Häggqvist, G. — a	V
Fankhauser, G. — d, e	J
Fankhauser, G. and Humphrey, R. R. — a, b	J
Fankhauser, G. and Humphrey, R. R. — c	(4)J
Gallien, L. — b	J
Kawamura, T. — b	J
Rostand, J. — a	J
Beatty, R. A. — a	M
Braden, A. W. H. — b	M
Edwards, R. G. — a	M

c Hybridization

Lehman, H. E. — d	G
Minganti, A. — a	H
Minamori, S. — a	(1)I
Benazzi, M. — b	J
Brachet, J. L. A. — a	(1)J
Chen, P. S. — b	(1)J
Gallien, L. — c	J
Gregg, J. R. — a, b	(1)J
Kawamura, T. — a	J
Malamed, S. — b	(1)J
Moore, Mrs B. C. — a	(2b)J

Moore, J. A. — a	J
Nobili, R. — a	J
Zeller, Ch. — a	(1)J

d Chimaera

Baltzer, F.; Chen, P. S.; Henzen, W. and Eymann, H. — b	J

e Merogony

3 Analysis of influence of special genes and mutants

a Special genes and mutants

Anders, G. — a	D
Castiglioni, Miss M. C. — c	(2a)D
Evans, D. R. — a	D
Fujii, S. — a	D
Kaji, S. — a	D
Kühn, A. — b, c	D
Counce, Miss S. J. — b	D
Nef, W. and Rosin, S. — a	D
Poulson, D. F. — c	D
Sobels F. H. — a	D
Wolsky, A. — c	D
Hishida, T. and Yamamoto, T. — b	I
Kajishima, T. — a	I
Tomita, H. and Yamamoto, T. — a	I
Chang, C. Y. — c	J
Dalton, D. — a	J
Frost, D. — a	J
Rostand, J. — b	J
Kieny, Miss M. A. — b	L
Landauer, W. — a, c	L
Willier, B. H. — a	L
Zwilling, E. — c	L
Borghese, E. — a	M
Carter, T. C. — a, b	M
Caspari, E. W. — c	M
Clayton—Freedman, Mrs R. M. — b	M
Counce, Miss S. J. — c	M
Grüneberg, H. — a	M
Hardy, Miss M. H. and Lyne, A. G. — d	M
Lyon, Miss M. F. — a, b, c	M
Markert, C. L. — a	M
McNutt, C. W. — a	M
Mintz, Miss B. — b	M
Stein, Miss K. F. — a	M
Truslove, Miss G. M. — a	M
Wolsky, A. — c	M

b Lethal factors

Benz, G. — a	(2a)D
Ede, D. A. — a	D
El Shatoury, H. H. — a	D
Hadorn, E. — b	D
Imaizumi, T. — a	D
Schnitter, M. — a	D
Sobels, F. H. — b	D
Baltzer, F. — a	G
Humphrey, R. R. — d, e	J
Moore, Mrs B. C. — a	(1)J

4 Phenocopies

Kühn, A. — c	D
Waddington, C. H. — d	D
Landauer, W. — d	L
Fraser, A. S. — b	M
Walker, B. E. — b	M

V. DEVELOPMENT AND PATHOLOGY

SUBDIVISION

1 Theoretical problems and general questions

2 General investigations in pathological development
- a General subjects
- b Relation between host and graft
- c Pathological influence of chemical treatment and deficiencies
- d Pathological influence of physical treatment
- e Teratology

3 Development of special malformations and pathological development of special organs
- a Development of special malformations

b Pathological development of special organs (Cf. general subdivision p. 141—143)

4 Tumours

1 Theoretical problems and general questions

2 General investigations in pathological development

a General subjects

Geigy-Heese, R. — c	D
Hadorn, E. — c	D
Brunst, V. V. — b	J
Chang, C. Y. — d	J
Deuchar, Miss E. M. — b	J
Stinson, B. D. — b	J
Cohn, S. A. — c	L
Robertson, G. G. — a	L
Romanoff, A. L. — c	L
Abercrombie, M. and Santler, Miss J. E. — c	M
Bartelmez, G. W. — d	M
Braden, A. W. H. — a	M
Dokter, H. J. — b	M
Giroud, A. — b	M
Gruenwald, P. — b, c	M
Gyllensten, L. J. W. — b	M
Hommes, O. and Langman, J. — a	M
Martinet, Mrs M. — a	M
Schröder, R. K. P. — a	M

b Relation between host and graft

Anton, H. J. — b	J
Felts, W. J. L. — a	M

c Pathological influence of chemical treatment and deficiencies

Kuhn, O. — c	
Mori, H. — a	D
Raven, Chr. P.; Geilenkirchen, W. L. M. and collaborators — b	E
Cheney, R. H. — e	G
Waddington, C. H. — e	H
Waddington, C. H. — e	V
Deuchar, Miss E. M. — c	J
Raunich, L. — f	J
Rieck, A. F. — a	J
Bagiński, S. — b	L
Dokter, H. J. and Langman, J. — a	L
Gruenwald, P. — a	L
Herrmann, H. and Konigsberg, Mrs U. Rothfels — b	L
Landauer, W. — b	L
Loewenthal, L. A. — a	L
Watterson, R. L. — a, b, c, e	L
Clarke Fraser, F. — a	M
Corliss, C. E. — b	M
Giroud, A. — a	M
Gould, R. P. — a	M
Lefebvres—Boisselot, Mrs J. — a	M
Martinet, Mrs M. — b, c	M
Menschik, Z. — a, b	M
Morlon, Miss C. — a	M
Packer, A. D. — c	M
Walker, B. E. — b	M
Wilson, J. G. — a	M

d Pathological influence of physical treatment

Kirrmann, J. M. — a	
Rugh, R. — a, c	
Cheney, R. H. — e	G
Gennaro, J. F., Jr. — a	J
Grefte, Miss G. J. de and Trampusch, H. A. L. — a	J
Luther, W. — b	J
O'Brien, J. P. — a, c	J
O'Connor, R. J. — b	J
Peters, Th. — a	J
Trampusch, H. A. L. — a	J
Chapman, A. O.; Holyoke, E. A. and Latta, J. S. — a	L
O'Connor, R. J. — b	L
Wey—Schué, Mrs M. — b	L
Felts, W. J. L. — a	M
Gennaro, J. F., Jr. — a	M
Grefte, Miss G. J. de and Trampusch, H. A. L. — a	M
Hintzsche, E. — c	M
O'Brien, J. P. — c	M
Luther, W. — b	M
Packer, A. D. — c	M

e Teratology

Krause, G. — b	D

Thomason, Miss D. — b	J
Bagiński, S. — a	L
Lutz, H. — b	L
Lutz, H. and Lutz—Ostertag, Mrs Y. — c	L
Pflugfelder, O. — b	L
Wolff, Et. C. — a	L
Faassen, F. van — b	M
Faassen, F. van and Langman, J. — a	M
Giroud, A. — c	M
Lelièvre, A. — a	M
Shaner, R. F. — b	M

3 *Development of special malformations and pathological development of special organs*

a **Development of special malformations**

Witschi, E. — b	V
Rostand, J. — b	J
Landauer, W. — c	L
Adams, Miss E. C.; McKay, D. G.; Benirschke, K.; Bardawil, W. and Hertig, A. T. — c	M
Chase, H. B. — a	M
Clarke Fraser, F. — b	M
Lefebvres—Boisselot, Mrs J. — c	M
Packer, A. D. — b	M
Settle, G. W. — a	M
Walker, B. E. — b	M

b **Pathological development of special organs**

Skin

Watterson, R. L. — e	L
Raynaud, A. — b	M

Nervous system

Watterson, R. L. — a, b	L
Bailey, J. C. — a	M
Delmas, A. — b	M
Eayrs, J. T. — a	M
Giroud, A. — d	M
Hogue, Miss M. J. — b	M
Huber, W. — a	M
Lefebvres—Boisselot, Mrs J. — b	M
Morlon, Miss C. — b	M
Sinclair, J. G. — c	M
Windle, W. F. — c	M

Special sense organs

Castiglioni, Miss M. C. — b	D
Delmas, A. — b	M
Guggenheim, P. G.; Clements, L. P. and Schlesinger, A. B. — c	M
Reid, B. L. — a	M
Schlesinger, A. B. — c	M

Skeleton

Watterson, R. L. — c	L

Muscular system

Alimentary tract

Kropp, B. N. — b	L
Kleiss, E. — a	M

Respiratory organs

Heart, vascular system and blood

Dankmeijer, J. and Los, J. A. — a	V
Manhoff, L., Jr. — a	L
Stephan, Fr. — b	L
Dankmeijer, J.; Snellen, H. A.; Dekker, Miss A. and Ingen, Miss H. C. v. — d	M
Reis, R. H. — a, b	M
Shaner, R. F. — a	M
Sinclair, J. G. — c	M
Tomlinson, J. D. W. — b	M

Coelomic cavities and endothelia, lymphatic system and connective tissue

Menschik, Z. — b	M

Urogenital system and sex determination

Turner, C. J. — c	M

Endocrine glands

4 *Tumours*

Heim, W. G. — a	
Levi-Montalcini, Miss R. — b	
Barigozzi, C. — b	D
Castiglioni, Miss M. C. — a	D
El Shatoury, H. H. — d	D
Evans, D. R. — a	D
Hartung, E. W. — a	D
Barigozzi, C. — a	J

O'Brien, J. P. — b	J
Rose, S. M. — a	J
Saxén, L. O. and Toivonen, S. I. — b	J
Spirito, A. — a	J
Vainio, E. T. — a, c	J
Hirata, A. A. and Schechtman, A. M. — a	L
Hirata, A. A. and Schechtman, A. M. — a	M
Koecke, U. — a	M
Segal, S. J. — b	M

VI. REGENERATION

SUBDIVISION

1 Theoretical problems and general questions
2 General investigations, including total regeneration
3 Partial regeneration
  a General subjects
  b Tail regeneration
  c Limb regeneration
  d Regeneration of special organ systems
  (Cf. general subdivision p. 141—143)

CHARACTER OF INVESTIGATION

(4) Physical treatment
(5) Chemical treatment
(6) Influence of hormones and vitamins

1 Theoretical problems and general questions

2 General investigations, including total regeneration

Kuhn, O. — d	
Fauré Fremiet, E.; Hamard, Miss M. and Gauchery, Miss M. — a	P
Yagiu, R. — d	P
Brien, P. L. — a	B
Miller, J. A., Jr. — b	B
Mookerjee, S. and Sanyal, S. — e	B
Tardent, P. — a, b	B
Bondi, C. — a	C
Brøndsted, H. V. — a	C
Greca, M. La — b	C
Herlant—Meewis, Mrs H. — a	C
Hubl, H. — a	(5)C
Hubl, H. — b, c	C
Kawakami, Mrs K. I. — a	C
Kido, T. — a	C
Lindh, N. O. — a, b	C
Moment, G. B. — a	C
Needham, A. E. — b	C
O'Brien, B. R. A. — a	C
Sengel, Ph. J. — a	C
Spratt, N. T., Jr. — c	C
Stephan—Dubois, Mrs Fr. — a, b, c	C
Sugino, H. — a	C
Wolff, Et. C. — c	C
Wolsky, A. — b	(4/5)C
Bodenstein, D. — a	D
Kühn, A. — a	D
Needham, A. E. — a	D
Wolsky, A. — b	(4/5)D
Brien, P. L. — a	F
Mawatari, Sh. — a	F
Schneider, D. — c	F
Butler, E. G. — c	H
Brunst, V. V. — c	J
Woerdeman, M. W. — c	J
Wolsky, A. — b	(4/5)J
Romanoff, A. L. — d	L
Woerdeman, M. W. — c	L

3 Partial regeneration

a General subjects

Morgan, Miss J. A.; Stock, A. and O'Farrell, A. F. — a	(6)D
Voy, A. — a	D
Nowakowna, Miss J. — a	(6)V
Radecka, Mrs E. Erdman — a	(6)V

Sembrat, K. — c	(6)V
Anton, H. J. — a	J
Dent, J. N. — b	J
Goss, R. J. — b	J
Jurand, A. — a	(5)J
Kiełbówna, Miss L. — a	(6)J
Luther, W. — b	(4)J
Newth, D. R. — a	J
Rieck, A. F. — c	(6)J
Rose, S. M. — a	J
Abercrombie, M. and Santler, Miss J. E. — c	M
Luther, W. — b	(4)M

b Tail regeneration

Lehmann, F. E. — b	(5)J
Raunich, L. — b	(5)J
Sukirna, M. — a	K

c Limb regeneration

Buser—Lahaye, Mrs J. — a	I
Goss, R. J. — a	I
Butler, E. G. — a, b	J
Butler, E. G. — d	(4)J
Chalkley, D. T. — a	(4/5)J
Chalkley, D. T. — b	(5)J
Deck, J. D. — a, b	J
Faber, J. — a	J
Fraser, R. C. — c	J
Gitlin, G. — b	J
Kiortsis, V. — a	J
Luther, W. — a	J
Masuda, H. — a	J
Mettetal, C. — a	J
Rieck, A. F. — b	J
Stinson, B. D. — a	(4/6)J
Thornton, C. S. — a, b, c	J
Trampusch, H. A. L. and Walen, Miss Ch. L. J. — c	J
Trampusch, H. A. L.; Vergroesen, A. J.; Visser, Miss P. J. and Vogelsang, Miss C. — b	J
Wey—Schué, Mrs M. — a	J
Yntema, C. L. — b	J

d Regeneration of special organ systems

Skin

Luther, W. — a	J
Jacobs, M. S. — a	M

Nervous system

Liu, C. N. — a	
Leghissa, S. — e	V
Stefanelli, A. — b	V
Kollros, J. J. — c, e	J
Leghissa, S. and Pasquini, P. — d	(5)J
Piatt, J. — c	J
Edds, M. V., Jr. — a	M
Hydén, H. — a	M
Liu, C. N. — b	M
Windle, W. F. — a	M

Special sense organs

Lender, Th. — a	C
Sato, T. — a	I
Cesare, Miss I. De and Pasquini, P. — d	(5)J
Doorenmaalen, W. J. van — a	J
Kato, M. — a	J
Reyer, R. W. and Stone, L. S. — a	J
Sembrat, K. — e	J
Sembratowa, Mrs Z. Opoczynska — a	J
Srivastava, M. D. L. — a	J
Steinitz, H. — a, b, c	J
Sangvichien, S. — b	K
Amprino, R. M. — b	L
Woerdeman, M. W. — a	L
Woerdeman, M. W. — a	M

Skeleton

Holtzer, H. — a	V
Kocher, W. — a	J
Rieck, A. F. — b	J

Muscular system

Alimentary tract

O'Connor, R. J. — a	M
Wilson, J. W. — a	M

Respiratory organs

Heart, vascular system and blood

Coelomic cavities and endothelia, lymphatic system and connective tissue

Urogenital system and sex determination

McMinn, R. M. H. — a	M

Endocrine glands

VII. METAMORPHOSIS

SUBDIVISION

1 Theoretical problems and general questions
2 General investigations
  a General subjects
  b Hormones and metamorphosis
  c Metamorphosis of part of the organism
  d Metamorphosis of special organ systems
  (Cf. general subdivision p. 141—143)

CHARACTER OF INVESTIGATION

(5) Chemical treatment

1 Theoretical problems and general questions

2 General investigations

a General subjects

Bouillon, J. — a	B
Brien, P. L. — a	B
Knight-Jones, E. W. — a	C
Chen, P. S. — c	D
El Shatoury, H. H. — e, f	D
Gloor, H. J. — a	D
Hadorn, E. — c	D
Ito, T. — a	D
Lerma, B. de — b	D
Loosli, R. — a	D
Piepho, H. — a, b	D
Scharloo, W. — a	D
Brien, P. L. — a	F
Mawatari, Sh. — a	F
Harvey, Mrs E. Browne — c	G
Brewin, B. I. — a	H
Baxter, E. W. — a	I
Castigli—Pitotti, Mrs M. — b	J
Humphrey, R. R. — c	J
Jurand, A. — b	J
Leghissa, S. and Pasquini, P — d	(5)J
Milin, R. — b	(5)J

b Hormones and metamorphosis

Milin, R. — a	
Fukuda, S. — a	D
Geigy-Heese, R. — b	D
Highnam, K. C. — a	D
Ichikawa, M. and Nishiitsutsuji, Miss J. — a	D
Lüscher, M. — b	D
Rae—Wickham, Mrs C. A. — a	D
Nowakowna, Miss J. — a	V
Radecka, Mrs E. Erdman — a	V
Sembrat, K. — c	V
Fraser, R. C. — b	J
Kollros, J. J. — b	J
Saxén, L. O. and Toivonen, S. I. — c	J

c Metamorphosis of part of the organism

d Metamorphosis of special organ systems

Skin

Andres, G. — b	J

Nervous system

Nüesch, H. — c	D

Special sense organs

Steinitz, H. — c	J
Takisawa, A. — b	J
Witschi, E. — e	J

Skeleton

Muscular system

Nüesch, H. — b	D
Takisawa, A. — a	J

Alimentary tract

Harder, W. — a	I
Boschwitz, Miss B. D. — a	J

Respiratory organs

Heart, vascular system and blood

Coelomic cavities and endothelia, lymphatic system and connective tissue

Brunold, Miss E. — a	D
Hadorn, E. — a	D

Endocrine glands

Leghissa, S. — f	(5)J

„SUPPLY AND DEMAND" SERVICE

for Laboratory Animals

Transactions should be carried out directly between the interested parties. We do not take any responsibilities either for the transactions themselves, or in matters relating to prices, in- and export regulations, animal protection regulations etc.

A. LIST OF SPECIES AVAILABLE

with numbers referring to List B.

Unless otherwise indicated, most items available throughout the year.

GENERAL	
Evertebrata	9
Marine animals	2, 45
Preserved embryological material	12
Tumours (transplantable mouse-)	10a
Tumours (Mammalian)	42
PROTISTA	
Protozoan cultures	9, 12
Chaos chaos (= Pelomyxa carolinensis, small amounts sufficient to start cultures)	40
COELENTERATA	
Coelenterata (marine spp.)	28
Coelenterata (various spp.)	12
VERMES	
Vermes (various spp.)	12
Annelida (marine spp.)	28
ARTHROPODA	
Myriopoda	2
Scorpiones	2
Crustacea	
Crustacea (marine spp.)	28
Artemia salina (eggs)	12
Insecta	
Insecta	2
Drosophila hydei, melanogaster, simulans	47
Drosophila nigromaculata (June-Sept.)	35
Ephestia kühniella (strains: Rt Rt and rt rt; mutants: a, wa)	5

Formica rufa (workers)	44[1]
Formica rufa (♂♂ and ♀♀, May-July)	44[1]
Lasius spec. (workers)	44[1]
Lasius spec. (♂♂ and ♀♀, May-July)	44[1]
Locusta migratoria migr.	41[2]
Melanoplus differentialis (egg pods, limited numbers)	23
MOLLUSCA	
Mollusca (marine spp.)	28
Gastropoda (giant land snails)	2
Watasenia scintillans (May-June, ripe ♀♀)	36
ECHINODERMATA	
Echinodermata (marine spp.)	28
Arbacia spec. (spring and summer)	37
Paracentrotus spec. (autumn and winter)	37
PISCES	
Elasmobranchii	28
Salmo gairdnerii kamloops (Dec.-April)	3
Onchorynchus keta, nerka, tschawytcha, gorbuscha, kisutch (fertilized ova to postlarval stages, Oct.-Dec.)	3
AMPHIBIA	
Amphibia (various spp.)	2, 15, 31
Urodela	
Ambystoma spp.	10
Ambystoma (7 spp.)	20
Ambystoma spp. (eggs and embryos, April-May)	26[3]

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[1] in exchange for Attini (living ♀♀ with brood, fungus gardens and workers)

[2] in exchange for Amphiuma spec.

Ambystoma maculatum (eggs and adults)	12
Ambystoma mexicanum (small amounts)	43
Ambystoma mexicanum (black, 1-3 years old)	51[4]
Ambystoma punctatum (eggs, March-April)	22[3]
Ambystoma tigrinum (preserved eggs and larvae)	10
Ampiuma means	20
Aneides spec.	10
Aneides aeneus	20
Batrocheps spec.	10
Cryptobranchus alleganiensis	20
Desmognathus spec.	10
Desmognathus (8 spp.)	20
Eurycea spec.	10
Eurycea (6 spp.)	20
Gyrinophilus (5 spp.)	20
Hemidactylium scutatum	20
Hynobius nebulosus (Jan.-March)	34
Hynobius retardatus (March-May)	35
Leurognathus (2 spp.)	20
Manculus quadridigitatus	20
Necturus spec.	10, 12
Necturus (5 spp.)	20
Plethodon spec.	10
Plethodon (15 spp.)	20
Pleurodeles Waltlii	39, 49
Pseudobranchus (2 spp.)	20
Pseudotriton (6 spp.)	20
Salamandra spec.	10
Salamandra atra (Sept.)	50[5]
Siren (2 spp.)	20
Triturus spp.	10
Triturus (4 spp.)	20
Triturus alpestris (April-June)	41[2]
Triturus alpestris	39
Triturus cristatus	39, 51[4]
Triturus cristatus carnifex	39
Triturus pyrrhogaster (April-June)	34
Triturus viridescens	12
Triturus viridescens viridescens (May-August)	14

Anura

Anura	49
Acris spec.	10
Bufo (3 spp.)	20
Bufo americanus	4
Bufo americanus (spring and early summer)	18, 25
Bufo marinus	4, 10
Discoglossus pictus (March-June)	46[6]
Hyla spec.	10
Hyla (4 spp.)	20
Hyla regilla (adults or stages)	3
Pseudacris (2 spp.)	20
Rana (5 spp.)	20
Rana catesbiana	12
Rana catesbiana (May-August)	14
Rana clamitans (May-August)	14
Rana pipiens (May-August)	14
Rana temporaria (March-June)	35
Scaphiopus holbrooki	20
Xenopus laevis	39
Xenopus laevis (small amounts)	43

REPTILIA

Reptilia (various spp.)	10
Lacertilia (eggs, young animals and adults)	39
Lacertilia	49
Ophidia	49
Thamnophis spec.	3

MAMMALIA

Marsupialia

Marsupialia (older fetuses)	38[7]
Trichosurus vulpecula (pouch fetuses, 3 cm)	38[7]
Wallabia rufogrisea (pouch fetuses, 2-6 cm)	38[7]

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[3] on exchange basis

[4] in exchange for albino axolotls (sexually mature)

[5] in exchange for embryos of Ratites

[6] in exchange for Triturus alpestris, Hyla arborea or Bombinator spec.

[7] return as slides; exchange in exceptional cases

Chiroptera	
Corynorhinus macrotis	20
Eptesicus fuscus	20
Lasiurus borealis	20
Myotis (6 spp.)	20
Pipistrellus subflavus	20
Primates	
Rhesus monkeys (♂ and ♀, 3-6 Lb.)	32
Lagomorpha	
Oryctolagus cuniculus (4 strains, one inbred since 1937; limited numbers, autumn and winter)	49
Rodentia	
Cavia cobaya (some strains; limited numbers)	49
Mus musculus (Strains: BALB, C 57, CBH; mutants: T, Ki, Fu, Bl)	5
Mus musculus (many inbred strains)	10a
Mus musculus (some strains, inbred during many generations; limited numbers)	49
Mus musculus (several mutants, e.g. A^y = homozygous-lethal yellow, W = macrocytic anaemia; hair-colour and eye-colour mutants)	49
Mus musculus (CBA, small numbers for breeding)	52
Mus rattus (hair-colour and eye-colour mutants)	49
Mus rattus (some inbred strains; limited numbers)	49
Carnivora	
Mustela putorius (limited numbers, autumn and winter)	49
Mustela putorius x Mustela putorius furo (hybrid; limited numbers, autumn and winter)	49

B. LIST OF NAMES AND ADDRESSES

(geographical order)

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32.* VITA LIMITED, 31 Ropewalk Street, Fort, BOMBAY
33.* BIOLOGICAL SUPPLY CONCERN, 14 Hare Street, CALCUTTA 1

Japan

34. LAB. OF EMBRYOL. AND EXP. MORPHOL., Zool. Inst., Dept of Sci., Kyoto University, KYOTO

35. DEPT OF ZOOL., Fac. of Sci., Hokkaido University, SAPPORO
36. BIOL. INST., Fac. of Lib. Arts, Toyama University, Hasumachi 22, TOYAMA

Lebanon

37. BIOL. DEPT, American University of Beirut, BEIRUT

AUSTRALIA

Australia

38. DEPT OF VET. ANAT. AND PARASITOL., Univ. Vet. School, Fairfield Road, Yeerongpilly, BRISBANE, Queensland

EUROPE

Belgium

39.* REPTILAMPHIBIA (Felix Vandevelde), Remerstraat, BAAL, Brabant

Denmark

40. CYTOCHEM. DEPT, Carlsberg Lab., 88 Gl. Carlsbergvej, COPENHAGEN, Valby

Germany

41. ZOOL. INSTITUT, Techn. Hochschule, DARMSTADT
42. INST. FÜR EXPER. KREBSFORSCHUNG, Univ. Heidelberg, Voszstrasze 3, HEIDELBERG
43. ZOOL. INSTITUT der Univ. Köln, Kerpenerstrasze 13, KÖLN-LINDENTHAL
44. INST. FÜR ANGEW. ZOOLOGIE der Univ. Würzburg, Röntgenring 10, WÜRZBURG

Italy

45.* STAZIONE ZOOLOGICA, NAPOLI
46. ISTITUTO DI ZOOLOGIA, Univ. di Palermo, Via Archirafi 18, PALERMO

Netherlands

47. GENETISCH INST. der Rijksuniversiteit, 5e Binnenvestgracht 8, LEIDEN
48. CENTRAAL PROEFDIERENBEDRIJF T.N.O., Biltstraat 172, UTRECHT

Spain

49.* HERMANN GRÜN, Linares de Riofrio, SALAMANCA

Switzerland

50. ZOOL.-VERGL.-ANAT. INSTITUT der Univ. Freiburg, FREIBURG
51. INST. DE ZOOL. ET D'ANAT. COMP., Univ. de Genève, GENÈVE

United Kingdom

52. WESTMINSTER MED. SCHOOL, Horseferry Road, LONDON S.W. 1

General questions and announcements

I The Hubrecht Laboratory

In the year 1956 the second international developmental research team will meet at the Hubrecht Laboratory under the direction of Dr M. E. Rawles (Baltimore, Md, U.S.A.) and Dr P. D. Nieuwkoop.

The duration has been extended by one month (January 15th—August 15th) in order to be able to pay more attention to the language problem, and to have more time available for the preliminary elaboration of the material collected, and for the preparation of the manuscript of the joint publication.

The topic for 1956 will be *"A causal analysis of the development and differentiation of the neural crest in Vertebrates."*

The following scientists will participate in this second international research team (in alphabetical order):

Mr R. Azoubel (B.M.), Recife, Brasil
Miss I. Büyüközer (M.D.), Ankara, Turkey
Mr H. U. Koecke (Ph.D.), Cologne, Germany
Mr E. Y. Mina (M.D.), Alexandria, Egypt
Miss I. Oikawa (Ph.D.), Kōchi, Japan
Miss M. Richter (B.Sc.), Amsterdam, Netherlands
Mr T. Seno (B.M.), Maebashi, Japan
Mr P. H. S. Silver (Ph.D.), London, England

II The Central Embryological Library (C.E.L.)

A *Exchange of reprints*

The number of reprints of publications of the Hubrecht Laboratory available for distribution is bound to certain limits. Therefore only institutes and scientific teams can be placed on our maling list. Unfortunately exchange with individual investigators is generally impossible.

B *Services rendered by the C.E.L.; conditions for borrowing*

1. Every embryologist can ask for information about literature of certain authors, for surveys of literature on certain subjects (according to the classification-system of the G.E.I.S.), for surveys of newly published literature, etc.
2. Every embryologist can borrow reprints which are not available in his own country. Books and Normal tables are usually not lent out, volumes of periodicals are only lent out to investigators in the Netherlands.

   Conditions:

   a. Reprints may be borrowed for 3 months at the utmost (for the Netherlands 1 month), time for shipment not included.
   b. The receipt added to the consignment must be returned by return of post, after having been controlled and signed.
   c. In case of high forwarding charges these have to be partly carried by the applicant.
3. Every embryologist can personally consult the C.E.L. at all times.

4. The C.E.L. will be at the disposal of every embryologist working at the Hubrecht Laboratory.

III The Central Embryological Collection of slides and material

A *Additions*

Prof. Dr S. Toivonen of Helsinki has presented the Collection with the complete set of serial sections of the later stages of Xenopus laevis, used by him during the elaboration of his contribution to the Normal Table of this species.

B *Conditions for borrowing*

Conditions:

1. Slides, material in paraffin and/or material in alcohol can only be borrowed for *one year*, after which it has to be returned automatically if no special request for extension of the loan has been made by the investigator and has been approved by the staff of the Hubrecht Laboratory.
2. Material in alcohol or paraffin has to be returned as such or in the form of *well prepared slides* which have been sectioned, stained and embedded properly, clearly labeled (name of species, thickness and direction of sectioning, method of staining, etc.) and numbered according to given indications.
3. Costs of transport may be charged if these exceed reasonable limits.
4. Two copies of those publications dealing with material from the Central Embryological Collection should be sent to the Central Embryological Library of the Hubrecht Laboratory.
5. If material of the Central Embryological Collection has been used in investigations, it is respectfully requested that this be indicated in the publications concerned.

Restrictions:

6. *Very rare* or regularly consulted material can only be studied at the Hubrecht Laboratory.
7. Material belonging to the historical collection cannot be lent out.
8. If material has not been treated properly or (after special request) has not been returned in time by an investigator, material will no longer be lent out to him or her.

IV The Photographic Reproduction Service

The Hubrecht Laboratory makes photostats on request of papers present in the Central Embryological Library or borrowed from elsewhere. The negatives will remain at the Laboratory.

Price list (both text and plates):
Positive microfilm (24 × 36 mm): p.p. ƒ 0.25 = $ 0.07
Enlarged prints
7 × 10 cm (box camera size): p.p. ƒ 0.40 = $ 0.10
13 × 18 cm (average page size): p.p. ƒ 0.50 = $ 0.13
18 × 24 cm (large page size): p.p. ƒ 0.65 = $ 0.17

V The Normal Table of Xenopus laevis

We can inform you that the Normal Table of *Xenopus laevis* will soon appear under the title „NORMAL TABLE OF XENOPUS LAEVIS (DAUDIN). A systematic and chronological survey of the development from the fertilized egg to the end of metamorphosis". The Normal Table will be published in book form by the North Holland Publishing Company, N.Z. Voorburgwal 68—70, Amsterdam, Netherlands. This work, which has been prepared by about twenty scientists from nine different countries of three continents has been edited by P. D. Nieuwkoop, Ph.D. and J. Faber, M.Sc.

After thorough consideration the editors have decided to give up the tabular form and to publish the work in ordinary book form, dividing the text into an extensive systematic and a more concise chronological description of the development.

Persons interested in this work are requested to send their orders direct to the Publishing Company.

Communications of the „Institut International d'Embryologie"

(Embryological Section of the I.U.B.S.)

The I.I.E. has to announce with great regret the loss of one its founders and honorary members, Prof. Dr K. Peter, who died in March, 1955 and the loss of two of its emeritus members, Prof. Dr Fr. Kopsch, who died in June, 1955, and Prof. Dr D. E. Holmdahl, who died in February, 1956. The I.I.E. recently received notice that its member, Prof. D. P. Filatow, died in 1943.

The I.I.E. has the pleasure to inform you that its next General Assembly will be held at Brown University, Providence, Rhode Island, U.S.A. from July 23 to 31, 1956.

The General Assembly of the I.I.E. has the following programme:

a) July 23 to 26, International Congress on Developmental Biology
b) July 26, business meeting of the I.I.E.
c) July 27 to 31, Conference on Cyto-differentiation, sponsored by I.U.B.S.

a) The International Congress on Developmental Biology will consist partly of symposia, partly of free papers. Since some kind of limitation of the free papers to be read will be unavoidable, the committee has suggested that every Fellow of the I.I.E. is entitled to announce two papers including his/her own.

b) According to its new statutes the I.I.E. will in future have an unlimited number of "ordinary members". Election to membership will be by simple majority of the General Assembly upon recommendation of two Fellows and approval by the Board (Art. 10 of the Statutes). Applications for membership are awaited by the Secretary, Prof. Dr Chr. P. Raven, Zoological Laboratory, Janskerkhof 3, Utrecht, Netherlands before *May 1, 1956*. Candidate members may tender their applications personally; they are however advised to secure the recommendation of two Fellows of the I.I.E. A list of Fellows is added below.

c) The Conference on Cyto-differentiation will be a symposium with a limited number of selected speakers, invited by the Organizing Comittee.

The Adjunct Secretary, P. D. NIEUWKOOP.

List of Fellows of the I. I. E.
(composed in March, 1956)

H. B. Adelmann, Ithaca, N.Y., U.S.A.
P. A. Ancel, Paris, la France (Emer.)
M. Avel, Bordeaux, la France
B. I. Balinsky, Johannesburg, Union of South Africa
F. Baltzer, Bern, der Schweiz (Emer.)
L. G. Barth, New York, N.Y., U.S.A.
Sir G. R. de Beer, London, England
H. Bluntschli, Bern, der Schweiz (Emer.)
J. Boeke, Utrecht, Nederland (Hon. President)
J. Brachet, Bruxelles, la Belgique
P. L. Brien, Bruxelles, la Belgique
A. J. P. v. d. Broek, Utrecht, Nederland (Emer.)
H. V. Brøndsted, København, Danmark
W. Buño, Montevideo, Brasil
R. K. Burns, Baltimore, Md, U.S.A.
E. v. Campenhout, Louvain, la Belgique
F. de Castro, Madrid, España
A. Celestino da Costa, Lisboa, Portugal
Chuang Hsiao-Hui, Shanghai, China
G. W. Corner, Baltimore, Md, U.S.A.
D. P. Costello, Chapel Hill, N.C., U.S.A.
G. Cotronei, Roma, Italia
A. M. Dalcq, Bruxelles, la Belgique
N. I. Dragomirow, Moskou, U.S.S.R. (proposed as a member)
R. M. Eakin, Berkeley, Calif., U.S.A.
Cl. Estable, Montevideo, Brasil
G. Fankhauser, Princeton, N.Y., U.S.A.
E. Fauré Fremiet, Paris, la France (Emer.)
Miss H. B. Fell, Cambridge, England
P. Gérard, Bruxelles, la Belgique
A. Giroud, Paris, la France
E. Hadorn, Zürich, der Schweiz
V. Hamburger, St Louis, Mo., U.S.A.
W. J. Hamilton, London, England
R. G. Harrison, New Haven, Conn., U.S.A. (Emer.)
Mrs E. B. Harvey, Princeton, N.J., U.S.A.
K. Henke, Göttingen, Deutschland
Ch. H. Heuser, Augusta, Ga., U.S.A.
L. Hoadley, Cambridge, Mass., U.S.A.
J. K. F. Holtfreter, Rochester, N.Y., U.S.A.
S. Hörstadius, Uppsala, Sverige
R. R. Humphrey, Buffalo, N.Y., U.S.A.
F. E. Lehmann, Bern, der Schweiz
G. L. Levi, Torino, Italia (Emer.)
W. H. Lewis, Philadelphia, Pa., U.S.A. (Emer.)
P. E. Lindahl, Uppsala, Sverige
G. V. Lopašov, Moskou, U.S.S.R. (proposed as a member)
O. Mangold, Heiligenberg, Deutschland

P. D. F. Murray, Sydney, Australia
J. Needham, Cambridge, England
J. S. Nicholas, New Haven, Conn., U.S.A.
Y. K. Okada, Tokyo, Japan
S. Pai, Shanghai, Japan
J. J. Pasteels, Bruxelles, la Belgique
L. V. Poležaev, Moskou, U.S.S.R. (proposed as a member)
S. Ranzi, Milano, Italia
Chr. P. Raven, Utrecht, Nederland
G. Reverberi, Palermo, Italia
J. A. M. Runnström, Stockholm, Sverige
A. M. Schechtman, Los Angeles, Calif., U.S.A.
D. Starck, Frankfurt a/M, Deutschland
A. Stefanelli, Roma, Italia
L. S. Stone, New Haven, Conn., U.S.A.
T. Thomson Flynn, Jamaica, West-Indies (Emer.)
S. I. Toivonen, Helsinki, Suomi-Finland
G. Töndury, Zürich, der Schweiz
T. C. Tung, Tsingtao, China
V. C. Twitty, Stanford, Calif., U.S.A.
A. Tyler, Pasadena, Calif., U.S.A.
L. v. Ubisch, Paradis, Norge
C. H. Waddington, Edinburgh, Scotland
A. Weber, Genève, la Suisse (Emer.)
P. A. Weiss, New York City, N.Y., U.S.A.
B. H. Willier, Baltimore, Md, U.S.A.
G. B. Wislocki, Boston, Mass., U.S.A.
E. Witschi, Iowa City, Iowa, U.S.A.
M. W. Woerdeman, Amsterdam, Nederland
Et. C. Wolff, Paris, la France
C. L. Yntema, Syracuse, N.Y., U.S.A.

For detailed addresses, see the alphabetical List of Names and Addresses (page 7 ff.)

Reviews of recently published books on development and related subjects

INTRODUCTION

In future in this chapter distinction will be made between two categories of books, viz. a) books written for the purpose of *instruction,* and b) books specially written for *scientific workers.*

This year the following books are reviewed below (in alphabetical order according to authors):

Group A:

Barth, L. G., 1953 — "Embryology" (revised and enlarged edition)
Kühn, A., 1955 — "Grundrisz der Allgemeinen Zoologie" (11th edition)
Levi, G., 1954 — "Trattato di istologia" (4th revised and enlarged edition)
Ranson, S. W., 1953 — "The anatomy of the nervous system, its development and function" (9th edition, revised by S. L. Clark)
Starck, D., 1955 — "Embryologie, ein Lehrbuch auf allgemein biologischer Grundlage"
Voss, H., 1954 — "Embryologischer Atlas für Studenten"
Watterson, R. L., 1955 — "Laboratory studies of chick and pig embryos"

Group B:

Barth, L. G. & Barth, L. J., 1954 — "The energetics of development, a study of metabolism in the frog egg"
Detlaf, T. A. & Hinsburg, A. S., 1954 — "The embryonic development of the sturgeons (Acipenser stellatus, A. guldenstädti colchicus and Huso huso) in connection with problems of breeding"
Gesell, A. in collaboration with Amatruda, Cath. S., 1953 — "L'embryologie du comportement"
Rostand, J., 1950 — "La parthénogenèse animale"
Schrader, Fr., 1954 — "Mitose, die Bewegung der Chromosomen bei der Zellteilung"
Ubisch, L. v., 1953 — "Entwicklungsprobleme"
White, Ph. R., 1954 — "The cultivation of animal and plant cells"
Wigglesworth, V. B., 1954 — "The physiology of insect metamorphosis"
Willier, B. H., Weiss, P. & Hamburger V., 1955 — "Analysis of development"

"EMBRYOLOGY"

Revised and enlarged edition, 1953

by L. G. Barth — The Dryden Press, Inc., New York
516 pp. with 304 figs — Price: $ 6,—

The second edition of the book has been considerably extended. The chapter on the development of the frog has been replaced by a chapter on general amphibian development, while a new chapter has been inserted on the development of the chick. The development of the nervous system and of the derivatives of the mesoderm has been treated much more extensively. Some changes have been made in the sequence of the various chapters, and almost all the illustrations have been modified and refined and a large number of photographs have been added.

This second edition shows improvements in comparison with the already very valuable first edition. It is therefore a pity that the photographs are reproduced so unsatisfactorily. On this account we should like to recommend that the next edition again be printed on better paper (which would however make the book more expensive) or that another technique be used.

The new chapter on comparative embryology of the vertebrates, in which several developmental steps are given of the development of the frog, chick, pig and man, in the form of drawings of sections, is very well prepared. The distribution of the figures on the successive pages cannot however be considered a great success. It would have been clearer and easier to arrange the figures simply according to the successive stages, since it is essentially the cross references at the beginning and the end of the description of each figure which form the actual key for comparison.

P. D. NIEUWKOOP

"GRUNDRISZ DER ALLGEMEINEN ZOOLOGIE"

11th edition, 1955

by A. Kühn
281 pp. with 223 figs

Georg Thieme Verlag, Stuttgart
Price: 16,50 D.M.

This concise textbook of Zoology for premedical students will form a guide into the enormous variety of forms and functions in the animal kingdom, and will show the general principles upon which its structure and function are based. The tenth edition has been changed and extended in many respects; the eleventh edition however shows only some corrections and small additions.

The book begins with an extensive introduction into the various phyla, classes and orders of the Invertebrates and Vertebrates. In the various groups of Invertebrates special attention has been paid to the parasitic forms, with their pathological significance. An extensive chapter has been devoted to general physiology in relation to morphological structure, after which the general development of the organisms has been described, with special emphasis upon the genetical aspects. Finally, some data on ecology and phylogeny have been briefly given.

The concise, but comprehensive treatment of the various chapters and the very instructive form of the illustrations allow this textbook completely to fulfill its purposes. We should like to recommend it warmly not only to premedical students — the text might be too extensive for the premedical teaching in many countries — but also to elementary students in biology. The list of references at the end of the book opens the way to more detailed studies of special subjects.

P. D. NIEUWKOOP

"DEVELOPMENTAL ANATOMY"

6th edition, 1954

by L. B. Arey
680 pp. with 630 figs, some in colour

W. B. Saunders Company
Philadelphia & London
Price: ?

This sixth edition has become essentially a new book, since it has been replanned, revised and for the greater part rewritten. The text has been written in large and small type, the large type representing the basic information and the small type supplementary material for more advanced students, especially those with medical background. An attempt has been made to review the world-literature on embryology since 1943, in particular as far as it affects human development.

In the first part general developmental aspects have been given, while in the second part the various organ systems have been treated systematically, grouped into entodermal, mesodermal and ectodermal derivatives. A laboratory manual of the embryology of the chick and the pig is added in order to make the development of the human fetus more easily understandable.

Besides the normal development, the main results of the experimental analysis in other groups of Vertebrates are given in the textbook on human embryology in order to give the student some insight in the causal relationships which lead to the special form and structure of the individual organ systems and which might lead under abnormal conditions to an aberrant development.

The form of presentation of the material is very instructive, and the clearly written text is well illustrated. The present form of this textbook with large and small type is therefore very successful. The large number of references at the end of each chapter will stimulate further reading. We should therefore like not only to recommend it warmly as an excellent textbook on human embryology, but also to congratulate the author on this successful revision of the book.

P. D. NIEUWKOOP

"TRATTATO DI ISTOLOGIA"

4th revised and enlarged edition, 1954

by G. Levi
1171 pp. with 839 figs, partly in colour

In two volumes
Unione Tipografico-Editrice Torinese
Price: L. 12.000,—

In this fourth edition the chapters on mitosis and meiosis have been considerably extended. During recent years two fields of analysis have made particularly rapid progress, the analysis of the ultrastructure of the cell, and that of the chemical composition of cells and tissues. The results of the first field are extensively incorporated in this edition. Some of the most recent data in the field of histo- and cytochemistry are considered by the author as being still too premature to stand all criticism. They have therefore only partially been incorporated in this edition.

This book is primarily meant for students in medicine, but may according to the author also be useful for postgraduates in medicine and natural sciences.

After an extensive description of the methodology and general properties of the living substance in the first part, the second part deals with the cellular structures, and finally the third part, covering the last chapters of the first and the entire second volume, deals with the various tissues. The second and third parts are treated systematically.

This very well organized textbook gives an enormous wealth of information, not only on morphological, but also on histophysiological and to some extent on histochemical data. Besides the adult structures many data on the embryological development, descriptive as well as experimental, have been incorporated. Regeneration and tissue culture in particular are extensively treated.

We consider that some of the pictures should be replaced by better examples and, more especially, that they could be reproduced better. Particularly the technique of reproducing the figures in colour leaves much to be desired.

Unfortunately not many scientists, and certainly not many students, outside Italy, will be able to profit by this standard work, because of lack of knowledge of the Italian language. This book, which covers such a wide field of literature, should be translated into another congress language in order to make it accessible to a much wider group of readers.

P. D. NIEUWKOOP

"THE ANATOMY OF THE NERVOUS SYSTEM, its Development and Function"

9th edition, 1953

by S. W. Ranson, revised by S. L. Clark
581 pp. with 344 figs, of which 18 in colour

W. B. Saunders Company
Philadelphia & London
Price: ?

In this textbook emphasis has been laid upon the developmental and functional aspects of the various structures of the nervous system by showing their origin and the functional relationships existing among the various parts.

The insertion of many pathway-diagrams is found to be very instructive. The separate chapter with serial sections of the brain is very important. We feel that the drawings are more instructive than the photographs, and would recommend an extension of the former at the cost of the latter in the next edition. It is further suggested that the segmental structure of the brain, recently studied in extenso by the Swedish school, might also be described in the first chapter.

The laboratory outline for neuroanatomy forms a practical conclusion of this work. The good organization of the text and the excellent illustrations make this well printed textbook a very valuable guide for medical students in the extensive and complicated field of neuroanatomy.

P. D. NIEUWKOOP

"LEHRBUCH UND ATLAS DER ANATOMIE DES MENSCHEN"

19th revised edition, 1954/55

by Fr. Kopsch
resp. 736 and 768 pp. with 731 and
782 figs, partly in colour

In two volumes
Georg Thieme Verlag, Stuttgart
Price: each volume 64,50 D.M.

This very extensive work deals essentially with the topographical anatomy of the human body; functional aspects have only been included in the chapters on joints and muscles and to some extent in other chapters. In this edition a part of the illustrations has been renewed, and a part has been enlarged to a proper size.

The work begins with some general chapters on cytology, histology and general features of the body, after which the various organ systems are treated systematically. In each chapter some general aspects are discussed before the systematic description begins. The description is very detailed and is richly illustrated. A small number of figures has been very carefully selected from other works, but the great majority of the illustrations are original drawings or photographs of original preparations. The preparations are so excellently made, and the drawings and photographs are so well reproduced, that they often give the impression of being three-dimensional.

Textbook and atlas have been combined in order to facilitate the study of text and figures together. The figures corresponding to the text are unavoidably spread over several preceding and following pages. In a separate atlas they might have been more easily grouped together. The sequence of the individual chapters and subdivisions seems at some points somewhat subjective; the teeth might, in our opinion, better be discussed together with the skeleton.

This anatomical textbook and atlas surely belongs to the best works on human anatomy, and is published with very great care and technical skill. It can therefore be warmly recommended to all medical students and physicians sufficiently acquainted with the German language. After the recent death of the author, this new edition forms a lively expression and memory of his great scholarship.

P. D. NIEUWKOOP

"EMBRYOLOGIE, ein Lehrbuch auf allgemein biologischer Grundlage"

1955

by D. Starck
688 pp. with 502 figs, partly in colour,
and a tabular appendix

Georg Thieme Verlag, Stuttgart
Price: 78.— D.M.

This extensive textbook on embryology, in which the author has tried to make a synthesis of comparative and experimental embryology, has not only been written for students, but also for scientific workers in the field of medicine and biology.

In the first, general part of this textbook, attention has been paid to the development and structure of the germ cells, the processes of meiosis and fertilization and their genetical aspects, after which cleavage, gastrulation and early development have been described. After a short description of the early development of some groups of meroblastic Vertebrates, the early development and placentation of the mammalian embryo has been treated extensively. In this general part of the book some principal results of experimental analysis have been given. Some small chapters on functional adaptation during development and on the various types of ontogenesis and their evolutionary significance conclude this part of the book.

The second part of the book deals with the organ development of the mammalian embryo, particularly of man, while malformations and their morphogenetic origin are extensively discussed. Finally a more theoretical chapter has been devoted to the organisation of the vertebrate body and in particular to the head problem.

We appreciate it very much that the human embryology is placed in the wider field of the general mammalian development by showing the many-sided comparative embryological aspects of human development. We must however confess that we are less enthusiastic about the synthesis of experimental and comparative embryology. Although we appreciate the initiative of the author, and believe that it will certainly stimulate further work in this direction, we feel that the author has given himself too heavy a task. Since he is himself a descriptive and comparative embryologist, the results of experimental embryology are given second place. The data given form in many cases a subjective choice out of the still controversial literature. The chapters on experimental embryology are moreover in several respects not up to date. We therefore advise the author to prepare the following edition of the book in collaboration with an experimental embryologist, so that both fields of research receive the same attention and reach the same high standard.

The synthesis of experimental and comparative embryology, although of very great interest, meets many difficulties. Such a synthesis can only be made in general outlines, and only as far as comparable processes are concerned. The most recent experimental analysis demonstrates that very pronounced quantitative and partially even qualitative differences exist between ,,comparable" processes in related species, so that great caution is required as to how far processes can be considered as actually comparable in the various groups of Vertebrates.

P. D. NIEUWKOOP

"EMBRYOLOGISCHER ATLAS FÜR STUDENTEN"
1954

by H. Voss
181 pp. with 270 figs

Gustaf Fischer Verlag, Jena
Price: 17.— D.M.

This embryological atlas shows the development of an amphibian, Bufo vulgaris, a bird, Gallus domesticus, and a mammal, Sus scrofa, in the form of a large number of photographs of microscopical sections through embryos of different age, reproducing each twentieth section. The development of Bufo is reproduced at the stages morula, blastula, gastrula, neurula and five further steps up to the tadpole stage. The development of the chick is given in seven steps, while only two embryos have been chosen for the representation of the development of the pig.

Although the idea of showing the students the development of an animal in a series of successive stages is very valuable, the way in which this has been tried in this atlas meets many serious objections. The very restricted number of stages does not allow any comparison, and does not give the student any idea of the morphogenetic processes leading from one stage to the other. The idea of reproducing a complete set of serial sections is, in our opinion, not tenable, when it leads to a drastic reduction of the number of stages presented. A great number of photographs is entirely superfluous for the understanding of the spatial structure of the embryo at a certain stage. It would therefore have been much better to have selected the most instructive sections at each stage and to have considerably increased the number of stages, so that the successive steps would have been much more comparable. This holds for the development of all three animals, but particularly for that of the chick and the pig.

Great objections are felt against the way the individual sections have been reproduced. The photographic procedure has not been adapted to the staining method used (or vice versa), so that the photographs hardly show any contrast among the various structures. Many pictures have moreover been reproduced on too small a scale. In the pig, where the sections were rather large, this might have been partially unavoidable, but in the chick there is no argument for reproducing in every section the extra-embryonic tissue which does not show any changes. It would have been adequate to have given the most important details at the proper magnification.

We hope that, if a second edition should appear, drastic changes will be made in the composition of this atlas, which in its present form is quite unsatisfactory.

P. D. NIEUWKOOP

"LABORATORY STUDIES OF CHICK AND PIG EMBRYOS"
1955

by R. L. Watterson
64 pp.

Offset print
Burgess Publishing Company, Minneapolis
Price: $ 2,25

In this manual the anatomy of the 33, 48 and 72 hour chick embryo and of the 10 mm pig embryo have been treated very accurately in a clear and easily surveyable form. The development up to the first stage (approx. 12—15 somites) has been given in a separate chapter. Nevertheless it will be very difficult for the beginner to understand the enormous step from the unincubated egg up to the well organized embryo of 12—15 somites. In the 48 and 72 hour embryos the general structure of the embryo probably does not change too much to be understood by the student, but the topography of the various structures needs, in our opinion, much additional information. It is therefore suggested that at least one or two stages be inserted before the 33 hour embryo and that some schematic drawings be added to illustrate the various morphogenetic events taking place in between the successive stages to be studied.

The presentation of only a single stage in the development of the pig might be misleading for the students. Although many developmental processes are comparable between the chick and the pig, the early development of the mammal differs so deeply from that of the chick that, in our opinion, it cannot be omitted entirely.

The very thorough treatment of the stages given makes this laboratory manual certainly of great value for the elementary student. We hope however that the author will insert some further chapters in the next edition.

P. D. NIEUWKOOP

⁂

"THE ENERGETICS OF DEVELOPMENT, a Study of Metabolism in the Frog Egg"
1954

by L. G. Barth and L. J. Barth
114 pp. with 17 figs in the text and 29 tabs

Columbia University Press, New York
Price: $ 3,—

This book is published by the Columbia University Press together with several other samples of current scholarship, on the occasion of the 200th year of Columbia's existence.

As the authors state in the preface, our knowledge of the energetics of development is at the present moment in a similar situation as morphological embryology in the early 1900s, when T. H. Morgan wrote his book on the development of the frog egg. The data in this monograph have been restricted to Rana pipiens in order to avoid species differences, and are mainly restricted to the literature published after 1949, since Brachet in 1950 reviewed the literature up to that time.

This monograph gives a comprehensive survey of the various data collected on the physiological, biochemical and biophysical aspects of the development of the frog egg. Methods used and results obtained have been discussed critically, and many problems have been pointed out to the reader. It shows on the one hand the enormous progress this field of science has made during the last decade, but on the other hand how little is known of the leading principles in development.

Although this monograph is particularly meant for specialists working in this field, and can therefore have such a specialized character, we feel that the development of the morphological structure to which the physiological, biochemical and biophysical processes are spatially bound, has received too little attention in this work. Only the synthesis of form and function can bring us to an understanding of the fundamental problems of development.

P. D. NIEUWKOOP

"THE EMBRYONIC DEVELOPMENT OF THE STURGEONS (ACIPENSER STELLATUS, A. GÜLDENSTÄDTI COLCHICUS AND HUSO HUSO) IN CONNECTION WITH PROBLEMS OF BREEDING." (Title translated from Russian)

1954

by T. A. Detlaf and A. S. Hinsburg
216 pp. with 51 figs in the text, 14 pls
and 18 tabs

Edited by S. G. Kryzhanovskiĭ
Published by the Acad. of Sciences
of the USSR, Moscow, on behalf of
the A.N. Severtsof Inst. of Animal
Morphol.

The large scale upon which waterworks are made in Russia opens great possibilities for fish-culture, but raises at the same time a number of difficult questions which have to be solved without delay. The canalization of the Don, Volga and Kura has cut off many fish species, including the sturgeons, from their spawning-grounds. It has become very urgent to develop breeding methods, e.g. for sturgeons. A better knowledge of the development of the sturgeons therefore formed a general requirement.

The first chapter of this Russian monograph gives a short description of the taxonomy and biology of the sturgeons based upon data from the literature. The second chapter gives literature data on the development and maturation of eggs and sperm. In the third chapter the development of the three sturgeon species mentioned in the title has been described extensively. This part of the book has more or less the character of a normal table with a series of plates of 36 successive stages. The fourth chapter treats the rate of development at different temperatures. The fifth chapter gives data on external conditions necessary for a normal development. Here also the deviations are described which may appear after changes in the external conditions. Finally the last chapter gives an analysis of the causes leading to death of the eggs or to a failure of fertilization.

The first chapters which deal with the normal development are very extensive and give a large number of valuable data on the development of this interesting group of fresh water fishes. Although these fish species are not very common in other parts of the world, it is of great interest that a sort of normal table of these species has been established.

The second part of the book gives mainly practical data of importance for fish breeding.

The book is well organized and rather richly illustrated, the drawings being however much better than the photographs, which are not very well reproduced. This holds also for the plates, which do not show enough details. In addition to illustrations of normal development, a large number of photographs of abnormal eggs have been given, the value of which is rather questionable, since these are well known phenomena of atypical cleavage.

There is a rather extensive list of literature, mainly of Russian authors. The foreign literature is very fragmentary; even some important works on the development of the sturgeons are lacking, while some older Russian works on the development of this group have not been included. Nevertheless we should like to call your attention to this summarizing work, based upon literature studies and original observations of the authors.

P. D. NIEUWKOOP

"L'EMBRYOLOGIE DU COMPORTEMENT"
1953

by A. Gesell, in collaboration
with Cath. S. Amatruda
301 pp. with 78 figs and 41 pls

,,Bibliothèque Scientifique Internationale"
Presses Universitaires de France, Paris
Price: 1344 fr.

This book is the French translation of the original English version of 1945. The book, which in its ten years' life has already gained a thorough authority, is a work written for specialists in the field. While reviewing it for this Service, one feels that it may be of more value to medical people than to general embryologists. The greatest value of the book lies in the second part, which deals with the foetal and normal infant, whereas for the prenatal stages unfortunately a certain lack of factual data is compensated by rather much philosophy, speculation and romantic detail, although these are not at all uninteresting in themselves. Moreover the first part contains perhaps too much elementary information for a book of this kind, which has certainly not been written for students. On the other hand, more references to the original literature could have been given in the text.

The book is written in a personal and captivating style, which however makes it difficult to read for a person who wants a quick orientation in the field. Moreover speculations are usually given in the form of statements without sufficient discussion of the factual basis. The monistic approach of the author expresses itself, for instance, in speculations about the origin of thought and genius, categories which, in the opinion of the reviewer, fall outside the scope of the book.

A final, clinically very important section of the book is formed by a photographic atlas of types of behaviour from foetal infancy to an age of several years. It is a great pity that in this edition the photographs are poorly reproduced. This very much reduces the value of the book as a whole.

J. FABER

"LA PARTHÉNOGENÈSE ANIMALE"

1950

by J. Rostand Presses Universitaires de France, Paris
161 pp. with 46 figs Price: 1344 fr.

This little book is of great value, particularly for workers in the specialized field covered by it. The subject is treated on a very broad basis, including the oldest as well as the most recent data, theories as well as techniques, the natural as well as the experimental aspects, the lower as well as the higher animals. Finally it also deals with the related subjects of gynogenesis, androgenesis and partheno-merogony.

The book is written in a very clear style, almost as if it had been intended for didactical purposes. As this can hardly be the case, some of the more elementary information seems rather irrelevant. For such a specialized type of monograph as this book, the system and number of literature references is definitely insufficient. The bibliography contains only 17 titles! Other references are given in footnotes and in the text in an arbitrary way, making access to the original literature rather difficult. On the other hand an index of authors' names, comprising about 200 entries, is a good help when using the book as a quick-reference work.

The diagrams, so important in this field of science, are of good quality. As regards the other illustrations, it is a pity that many of these are of little other than decorative value, since it is difficult to distinguish a parthenogenetic individual from a normal one, especially when the normal one is not pictured. Moreover, the reproduction of the photographs is unsatisfactory, while in many cases two or three pictures have been used where one would have been sufficient. The total absence of references to the illustrations in the text produces on unfortunate lack of unity between these components of the book.

The typography of the book is old-fashioned. Better binding, typography and reproduction of the photographs would make it more valuable with only a slight increase in price.

J. FABER

"ENTWICKLUNGSPROBLEME"

1953

by L. v. Ubisch Gustav Fischer Verlag, Jena
196 pp. with 65 figs Price: 12,70 D.M.

In this theoretical biological work the author discusses the fundamental problem of differentiation during embryonic development. He starts from the statement that the experimental analysis has shown that the successive nuclear divisions are genetically equal, so that the development of a spatial segregation in the egg must be based upon the cell plasm. According to the author the role of the genes has been entirely left out of consideration in the existing theories of mosaic distribution of organ-forming substances, and in those in which gradient-fields are considered to determine regional organization. The author emphasizes that general theories on development must also hold for the asexual reproduction which leads to the same spatial organization. As a necessary limitation of the material presented, only the development of the Invertebrates has been considered in this work.

In the first part on plasmatic maturation of the egg, he comes to the conclusion that there is a causal sequence in plasmatic and nuclear maturation. The spatial distribution of the plasmatic inclusions is based upon the structure of the "groundplasm". The inclusions have no organ-genetic significance, but can be necessary for the normal development of certain organ-systems.

From the second part on determination the author concludes that the principle of progressive determination does not hold for the cleavage period up to the blastula stage. Determination is not based upon a special segregation of organ-forming substances, but must depend upon the structure of the groundplasm which is also the seat of the power of regulation. The local properties of the ground plasm determine the differentiation of the enclosed nucleus. The role of cleavage is thought to be the provision of totipotent nuclei in the various plasm areas and the spatial segregation of these groundplasm areas.

The third part deals with the various gradient theories and the phenomena of induction and organization. The author finds many points of correspondence with the conclusions made in Child's book "Patterns and problems of development". 1941. He however denies that gradients are based upon differences in metabolic activity, but states that the latter are merely an expression of processes of differentiation.

In the last part the relation between the genes and the plasm gradients is discussed. The author concludes that gradients actually exist and play a decisive role in the process of differentiation. Their nature and origin remain however questionable. He denies the role of substances as well as metabolic gradients, but concludes that differentiation must be based upon gradients in the structure of the groundplasm. Direct evidence is however still restricted.

So far the author's considerations are very well argued. His further suggestion that chromosomes also possess gradients, and that genes of a certain chromosome gradient traject can only react with a certain plasm gradient traject is still too speculative, and reduces to some extent the great value of this important work.

This very interesting theoretical work deals with a large number of fundamental problems, in which, we hope, all embryologists will be interested, so that this work will contribute to a sharper theoretical planning of the experimental analysis and consideration of the results obtained, which is a highly desirable aspect. The fact that the work has been written in war time, and had to wait so long before publication could be prepared, has led unfortunately to the fact that several recent advances in the experimental analysis have not been incorporated and synthesized in this work.

P. D. NIEUWKOOP

"MITOSE, die Bewegung der Chromosomen bei der Zellteilung"

1954

by Fr. Schrader
150 pp. with 19 figs

Verlag Franz Deuticke, Wien
Price: ?

Since 1944 so much progress has been made in the analysis of the process of mitosis, changing our opinions, that a revision of the first edition has become highly desirable. Particularly the use of the phase contrast microscope and the polarisation microscope, and the development of new techniques for the electron microscope have led to a further development of our knowledge of the processes involved.

This monograph on mitosis deals with nuclear division with the help of spindle formation, thus including meiosis, but excluding cytokinesis. It deals mainly with the literature of the last thirty years, while Wassermann (1929) has given an excellent review of the literature up to that date.

The author has tried to show that mitosis is not a uniform process, but is composed of different mechanisms upon which the biochemical and biophysical forces act differently. As in so many biological processes, generalizing hypotheses do not bring us much further in our understanding of the processes involved. This monograph once more tries to convince us that a better understanding might only obtained by a sharper and more accurate analysis of the processes themselves.

P. D. NIEUWKOOP

"THE CULTIVATION OF ANIMAL AND PLANT CELLS"
1954

by Ph. R. White — The Ronald Press Company, New York
239 pp. with 54 figs — Price: $ 6,—

This manual on cultivation of animal and plant cells has been written for students who are interested in this subject. All the major techniques are described, and some simple techniques are added for the beginner. The author has intended to emphasize the essential importance of the cell itself as the basic physiological entity out of which "organisms" are constituted.

This manual essentially forms an extensive laboratory guide, written by a very experienced worker, so that it contains all the essential information in a very concise form. The clearly written and well organised text, which has been illustrated adequately, will certainly help interested students to overcome the natural fear of entering this field of research, which is generally considered difficult, and will actually stimulate them to try the cultivation of animal or plant cells themselves. We appreciate it very much that the author has given the techniques for the cultivation of both animal and plant cells, and hope that this book will find many young readers.

P. D. NIEUWKOOP

"METHODIK DER GEWEBEZÜCHTUNG"
1954

by K. F. Bauer — S. Hirzel Verlag, Stuttgart
248 pp. with 130 figs — Price: ?

According to the author the method of tissue culture has penetrated into many branches of medecine and biology, and the number of different techniques has increased so much, that a survey of the latter might actually help the workers in this field to become better acquainted with the many-sided aspects of this biological experiment.

This book might best be characterized as being in between a laboratory guide and a manual on tissue culture. We feel that it would have been easier for the reader if the book had been given the form of a pure laboratory guide, in which all the different techniques in use in the various schools would have been described objectively. The present survey is unfortunately not complete. The very recent, but promising micro motion picture technique is not included. The literature survey at the end of the book does not seem entirely up to date, particularly as regards the foreign literature.

The author has tried to show the fundamental significance of the tissue culture method as well as its applicability to biochemistry, pharmacology, bacteriology, pathology, radiology, etc., so that the book probably will find many readers in various branches of science.

P. D. NIEUWKOOP

"THE PHYSIOLOGY OF INSECT METAMORPHOSIS"
1954

by V. B. Wigglesworth
152 pp. with 45 figs and 4 pls

"Cambridge monographs in Experimental Biology" No. 1
Cambridge University Press
Price: 12 s. 6 d.

The reason why this book is of great importance also for the general embryologist is the fact that, specialized as the subject may be, it is discussed against the broadest possible biological background. The central theme is the view expressed by the author that metamorphosis is merely a special case of the general phenomenon of polymorphism. This view is particularly supported by the choice of the author's experimental animal, *Rhodnius*, which has no imaginal discs in the strict sense of the word. All imaginal structures are formed by tissues which have previously formed specialized larval structures, so that it is clear that these tissues have both larval and adult potencies from the beginning.

Because *Rhodnius* is always put in the centre, the book is not so much a compilation of the work done in this field, but rather a personal account of the author's own work and thought, with full and critical use of the work of others.

The title of the book is perhaps a little misleading, since much attention has also been given to larval growth and moulting and their physiological control, subjects which cannot be excluded for a good understanding of metamorphosis. The theoretical considerations given to such notions as polymorphism, integration, competence, determination and differentiation, as well as the emphasis put upon the role of the substrate on which organizing substances (i.c. hormones) act, are of great general importance.

An extensive biblography and a subject index are given. The typography and the execution of the numerous beautiful illustrations are excellent. If the following numbers of this series keep up the standards set here, we may congratulate the publishers on their initiative.

J. FABER

"ANALYSIS OF DEVELOPMENT"
1955

by B. H. Willier, P. A. Weiss and
V. Hamburger
735 pp. with 248 figs

W. B. Saunders Company,
Philadelphia & London
Price: ?

This composite work, to which 28 American scientists contributed, will form a modern systhesis of our knowledge of the principles and mechanisms of development. The value of such a work with respect to the trends of overspecialization of scientists at the present time does not need any further argument or emphasis.

Since such a project far exceeds the abilities of any one individual, the work was planned by the editors in 1947 as a collaborative work, thus sacrificing a part of the desired unity and integration. The individual contributors were asked to describe the principles upon which the developmental processes are founded on the basis of crucial and analytically strong experiments, and to indicate still unexplored or controversial as well as desirable new lines of analysis. We must confess that some contributions better fulfill all these requirements than do others.

The editors have given themselves an enormous task, perhaps even a task which is in part impracticable. The field of research treated is not only very wide, but is a rapidly extending field. Our views upon many aspects of it, and upon many problems is changing so rapidly that such a work can only intend to be a momentary survey of our knowledge and understanding, a survey which should anyhow be up to date. It is particularly this last aspect which is impracticable in a collaborative work of this size. Several contributions were already completed several years ago, and could unfortunately not be brought entirely up to date. Notwithstanding these partially unavoidable but nevertheless serious objections, the general scope of this book and its internal organization demand our great admiration and gratitude to the editors for their initiative, and for the themendous work done by the editors and collaborators. The work forms an excellent guide into the many-sided aspects of developmental analysis and into the enormous literature of this field.

P. D. NIEUWKOOP

Edited bij Dr P. D. Nieuwkoop
Director of the Hubrecht Laboratory
2 Janskerkhof, Utrecht, Netherlands

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GENERAL EMBRYOLOGICAL INFORMATION SERVICE

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INTRODUCTION

Subscribers are now receiving the supplement to the sixth issue.

Since two years now elapse between the appearance of two successive full issues, it has become more difficult to trace the addresses of collaborators who have moved in the meantime. It is therefore desirable that everybody keep us informed about any changes of address.

This supplement is free of charge. We hope to be able to maintain the rule of a cost-free supplement also in the future without increase of the subscription price.

For practical reasons it is impossible to repeat data of the *"Supply and Demand Service"* from previous issues, when no new information has been received. Since with every new list all previous lists become invalid, this means that it is desirable that all Institutes interested in he Service send in their data every year. If there are no changes, it is sufficient to send a statement that the information is still valid.

This year for the first time data have reached us from the U.S.S.R., viz. from the *A. N. Severtzov Institute of Animal Morphology at Moscow*. With a view to keeping our information up to date we have, by way of exception, included the names with the subjects in the list of addresses, and have listed the staff separately on page 7.

P. D. NIEUWKOOP.

Changes of address, and new addresses of collaborators

New data from the U.S.S.R.

ASTAUROV, B. L. Dr. Biol. Sci., Prof. (address see p. 7)
  a. Artificial parthenogenesis and experimental polyploidy. *Bombyx mori* L. *(Lepidoptera)*
  b. Androgenesis, especially interspecific. *Bombyx mori* L., *B. mandarina* Moore *(Lepidoptera)*
  c. Influence of high temperature on developmental processes; heat denaturation of proteins. *Bombyx mori* L. *(Lepidoptera) and many other organisms*

AZOUBEL, R. M.B. — Dept 1 - Histol., Fac. de Med., Univ. do Recife, Inst. Alvaro Ozorio de Almeida, Caixa Postal 616, RECIFE, Brazil

BEDNJAKOVA, Mrs. T. A. Cand. Biol. Sci. (address see p. 7)
  a. Influence of high temperatures on developmental processes. *Bombyx mori* L. *(Lepidoptera)*
  b. Analysis of sterilizing effect of sublethal high temperature on eggs infected with Nosema bombycis. *Bombyx mori* L. *(Lepidoptera)*

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† BOEKE, J. F.I.I.E., Dr, Prof. (Emer.) — UTRECHT, Holland
(Deceased Sept. 12, 1956)

BRIGGS, R. W. Ph.D. — Dept of Zool., Indiana Univ., BLOOMINGTON, Ind., U.S.A.

BÜYÜKÖZER, Miss I. M.D. — Histol. ve Embriol. Enstitüsü, Tip Fakültesi, Cebeci, ANKARA, Turkey

† CELESTINO DA COSTA, A. F.I.I.E., Dr hon. causa, Prof. — LISBOA, Portugal
(Deceased April 1956)

DETTLAFF, Mrs. T. A. Dr. Biol. Sci., Prof. (address see p. 7)
  a. Physiology of activation of the egg: the role of Ca-ions, the process of secretion. *Huso huso, Acipenser güldenstädti, A. stellatus (Acipenseriformes, Chondrostei)*
  b. The fate of the polysaccharides in the period of fertilization. *(Acipenseriformes, Chondrostei)*

FOOTE, Ch. L. Prof. — Zool. Dept, Southern Illinois Univ., CARBONDALE, Ill., U.S.A.

GANGULY, D. N. Prof. — Dept of Zool., Calcutta Univ., 35 Ballygunj Circular Road, CALCUTTA 19, India

GINSBURG, Mrs. A. S. Cand. Biol. Sci. (address see p. 7)
  a. Cytology of fertilization; experimental polyspermy. *Huso huso, Acipenser güldenstädti, A. stellatus (Acipenseriformes, Chondrostei)*

GROENENDIJK—HUIJBERS, Mrs M. M. M.D., Lect. — Dept of Anat., Univ. of Saskatchewan, SASKATOON, Canada

HARTE, Miss C. Dr, Prof. — Inst. für Entwicklungsphysiologie der Univ. Köln, Amsterdamerstr. 36, KÖLN/Riehl, Deutschland

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HOLLANDER, W. F. Dr — Dept of Genetics, Iowa State Coll., AMES, Iowa, U.S.A.

IGNATJEVA, Mrs. G. M. Cand. Biol. Sci. (address see p. 7)

a. The hatching enzyme and the conditions of hatching. *Huso huso, Acipenser güldenstädti, A. stellatus (Acipenseriformes, Chondrostei)*

KINDAHL, Miss M. E. Phil. Dr — Linnégatan 22, STOCKHOLM Ö, Sweden

LOPASHOV, G. V. Dr. Biol. Sci., Prof. (address see p. 7)

a. Complex analysis of conditions of embryonic development of the parts of the eye rudiment. *Triturus taeniatus, T. vittatus, Ambystoma mexicanum (Urodela), Rana arvalis, R. esculenta, R. ridibunda, Bufo viridis, Pelobates fuscus (Anura)*

b. Analysis of significance of intracellular components and of the composition of the medium on the development of embryonic cells (ectoderm, neural plate, eye rudiment). *Ambystoma mexicanum (Urodela), Rana arvalis, R. ridibunda* etc. *(Anura), Misgurnus fossilis, Cyprinus carpio, Nemacheilus barbatulus, Cyprinodontid* spp. *(Pisces)*

c. Analysis of sources and conditions of retina regeneration in tadpoles. *Bufo viridis, Rana arvalis (Anura)*

MAY, R. M. Prof. — Lab. de Biol. Animale, Univ. de Paris, 12 Rue Cuvier, PARIS Ve, France

† MELLANBY, Sir Edward — LONDON, England (U.K.) (Deceased)

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MINA, E. Y. M.D. — Dept of Anat., Fac. of Med., ALEXANDRIA, Egypt

OSTRJAKOVA—VARSHAVER, Mrs. V. P. Cand. Biol. Sci. (address see p. 7)

a. Cytology of experimental heat androgenesis. *Bombyx mori* L. *(Lepidoptera)*

b. Cytology of experimental polyploidy. *Bombyx mori* L. *(Lepidoptera)*

c. Artificial parthenogenesis and androgenesis. *Bombyx mori* L. *(Lepidoptera)*

PEPPER, Miss F. J. B.Sc., Ph.D. — Dept of Zool. and Comp. Physiol., Birmingham Univ., Edgbaston, BIRMINGHAM 15, England (U.K.)

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SAMBUICHI, H. Dr — Zool. Lab., Fac. of Sci., Hiroshima Univ., Higashisenda-cho, HIROSHIMA, Japan

SENO, T. B.M. — Dept of Anat., School of Med., Gunma Univ., MAEBASHI, Japan (until October 1957: Dept of Biol., The Johns Hopkins Univ., Charles and 34th Sts, BALTIMORE 18, Md, U.S.A.)

STROËVA, Miss O. G. Cand. Biol. Sci. (address see below)
  a. Analysis of the capicity of the eyes of adult animals to regenerate the retina. *Bombina bombina (Anura), Rattus norvegicus (Rodentia)*
  b. Analysis of the conditions of embryonic segregation of the eye rudiment. *Rattus norvegicus (Rodentia)*
  c. The action of certain substances on the capacity of parts of the eye of transformations, especially of pigment epithelium into retina, in tadpoles. *Rana arvalis, Pelobates fuscus* etc. *(Anura)*

THOMPSON, A. R. D. B.Sc., M.B., Ch.B. — Dept of Anat., Med. School, Birmingham Univ., Edgbaston, BIRMINGHAM 15, England (U.K.)

VEREJSKAJA, Miss V. N. Cand. Biol. Sci. (address see below)
  a. Influence of high temperatures on developmental processes. *Bombyx mori* L. *(Lepidoptera)*
  b. Analysis of sterilizing effect of sublethal high temperatures on eggs infected with Nosema bombycis. *Bombyx mori* L. *(Lepidoptera)*

WILLIAMS, J. B.Sc., M.B., Ch.B. — Dept of Anat., Med. School, Birmingham Univ., Edgbaston, BIRMINGHAM 15, England (U.K.)

ZOTIN, A. I. Cand. Biol. Sci. (address see below)
  a. Study of water metabolism in embryonic development. *Huso huso, Acipenser güldenstädti, A. stellatus (Acipenseriformes, Chondrostei), Salmo salar, Coregonus lavaretus (Clupeiformes, Teleostei)*

Institutes in the U. S. S. R.

Moscow, V-71, 33 Bolshaja Kalushskaja, A.N. Severtzov Institute of Animal Morphology of the Acad. of Sci. of the U.S.S.R.
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DRAGOMIROV, N. I. Prof.
POLEZHAYEV, L. V. Prof.
D. P. Filatov Laboratory of Experimental Embryology
* ASTAUROV, B. L. Prof., Head
Senior Research Workers:
* DETTLAFF, Mrs. T. A. Prof.
* LOPASHOV, G. V. Prof.
* GINSBURG, Mrs. A. S.
* BEDNJAKOVA, Mrs. T. A.
* OSTRJAKOVA-VARSHAVER, Mrs. V. P.
Research Workers:
* STROËVA, Miss O. G.
* IGNATJEVA, Mrs. G. M.
* VEREJSKAJA, Miss V. N.
* ZOTIN, A. I.
Laboratory of Ecological Embryology
KRIŽANOVSKY, S. G. Prof., Head
Laboratory of Comparative Embryology
SMIDT, G. A. Prof., Head
Laboratory of General Embryology
MATVEJEV, B. S. Prof., Head

„SUPPLY AND DEMAND" SERVICE

for Laboratory Animals

Transactions should be carried out directly between the interested parties. We do not take any responsibilities either for the transactions themselves, or in matters relating to prices, in- and export regulations, animal protection regulations etc.

With each new list all previous lists become invalid.

A. LIST OF SPECIES AVAILABLE

with numbers referring to List B.

Unless otherwise indicated, most items available throughout the year.

GENERAL	
Australian spp.	26[1]
Embryological material (pres. specimens and slides; many spp.)	6
Embryological material (pres. specimens; all phyla)	9
Embryological material (pres. specimens and slides; all phyla)	10
Marine animals	1, 32
Tumours (transplantable mouse-)	8
Tumours (rodent-, many lines)	28
EVERTEBRATA	
Evertebrata	6
Evertebrata (from Whitstable Bay, many spp. from all phyla, fauna list available)	39
PROTISTA	
Protozoan cultures	6
Protozoa (several spp.)	9
Protozoa (many spp., clone cultures)	10
COELENTERATA	
Coelenterata (various spp.)	9
Coelenterata (marine spp.)	15
Hydra (4 spp.)	10

VERMES	
Vermes (various spp.)	9
Annelida (10 spp.)	10
Annelida (marine spp.)	15
Bdelloura candida	9
Dugesia dorotocephala	10
Dugesia gonocephala	21
Dugesia tigrina	10
Nematoda (4 spp.)	10
Planaria maculata	9
Procotyla fluviatilis	9
Rotifera (4 spp.)	10
ARTHROPODA	
Arthropoda (many spp.)	10
Artemia salina (eggs)	9
Crustacea (marine spp.)	15
Myriopoda	1
Scorpiones	1
Insecta	
Insecta	1
Calliphora erythrocephala (mutant "white-apricot")	31
Drosophila hydei	33
Drosophila melanogaster (many mutants)	9. 10
Drosophila melanogaster	33
Ephestia Kühniella (strains and mutants)	4
Formica rufa rufo-pratensis Gössw.	30[2]
Lasius (diff. spp.)	30[2]

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[1] on special request.

[2] in exchange for Attini.

Mantidae (eggs)	26[3]
Melanoplus diff. diff. Thomas (eggs in diapause and post-diapause stages)	5[4]
Mormoniella vitripennis (mutants)	10
Myzus ascalonicus	30[2]
Phasmidae (eggs)	26[3]
Sarcophaga bullata	10
Zaprionus ghesquierei	33
Zaprionus vittiger	33

MOLLUSCA

Mollusca (marine spp.)	15
Campeloma spec.	16
Gastropoda (giant land snails)	1
Gastropoda (several spp.)	10
Goniobasis spec.	16
Physa spec.	16
Planorbis spec.	16
Watasenia scintillans (May-June, ripe ♀♀)	22

BRYOZOA

Plumatella spec.	10

ECHINODERMATA

Echinodermata (marine spp.)	15
Asterias spec.	9
Echinarachnius spec. (preserved eggs)	12

PISCES

Ammocoetes	10
Clupea pilchardus (Walb.) (Dec.-July)	25[5]
Elasmobranchii	15
Engraulis encrasicholus L. (Apr.-Sept.)	25[5]
Gambusia spec.	10
Gasterosteus spec.	16
Onchorynchus spp. (developmental stages, Oct.-June)	2
Scomber scomber L. (eggs and embryos, April only)	25[5]
Selachii (from Whitstable Bay, several spp., fauna list available)	39
Teleostei (from Whitstable Bay, many spp., fauna list available)	39
Umbra limi	16

AMPHIBIA

Urodela

Ambystoma spp.	7
Ambystoma (7 spp.)	11
Ambystoma maculatum (eggs and adults)	9
Ambystoma maculatum	16
Ambystoma opacum	16
Ambystoma punctatum (eggs and embryos, Apr.-May)	14
Ambystoma tigrinum (preserved eggs and larvae)	7
Ambystoma tigrinum	16
Amphiuma spec.	10
Amphiuma means	11
Aneides spec.	7
Aneides aeneus	11
Batrocheps spec.	7
Cryptobranchus alleganiensis	11
Desmognathus spec.	7
Desmognatus (8 spp.)	11
Eurycea spec.	7
Eurycea (6 spp.)	11
Gyrinophilus (5 spp.)	11
Hemidactylium scutatum	11
Hynobius lichenatus (eggs, March-Apr.)	23[6]
Hynobius nigrescens (Apr.-Aug.)	20
Hynobius nigrescens (eggs, March-Apr.)	23[6]
Leurognathus (2 spp.)	11
Manculus quadridigitatus	11
Necturus spec.	7, 9, 16
Necturus (5 spp.)	11
Necturus maculosus (Nov.-May)	10
Plethodon spec.	7
Plethodon (15 spp.)	11
Pleurodeles Waltlii	27, 37
Pseudobranchus (2 spp.)	11

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[2] in exchange for Attini.
[3] on exchange basis.
[4] in exchange for Stenobothrus lineatus.
[5] in exchange for Sarda sarda (Bloch) and Temnodon saltator.
[6] in exchange for Ambystoma mexicanum (albino and normal).

Pseudotriton (6 spp.)	11
Salamandra spec.	7
Siren (2 spp.)	11
Triturus spp.	7
Triturus (4 spp.)	11
Triturus alpestris	27
Triturus cristatus	27
Triturus cristatus carnifex	27
Triturus pyrrhogaster	18, 23[6]
Triturus pyrrhogaster (Apr.-Sept.)	19[7]
Triturus pyrrhogaster (Apr.-Aug.)	20
Triturus viridescens	9, 10, 16
Anura	
Anura	37
Acris spec.	7
Bufo spec.	16
Bufo (3 spp.)	11
Bufo americanus	3
Bufo marinus	3, 7
Hyla spec.	7
Hyla (4 spp.)	11
Pseudacris (2 spp.)	11
Rana (5 spp.)	11
Rana catesbeiana	9, 10, 16
Rana clamitans	10, 16
Rana grylio	10
Rana nigromaculata (Apr.-Aug.)	20
Rana pipiens	9, 10, 13, 16
Rana sylvatica	16
Scaphiopus holbrooki	11
Xenopus laevis	27, 29
Xenopus laevis (small amounts)	34
REPTILIA	
Reptilia (various spp.)	7
Anolis carolinensis	10
Chelonia (eggs)	10
Chelonia	16
Hemidactylus platyurus (preserved embryos)	24[8]
Lacertilia (eggs, young animals and adults)	27
Lacertilia	37

Ophidia	37
Phrynosoma cornutum (preserved eggs)	12
Pseudemys (3 spp.)	10
Pseudemys elegans	9
Sceloporus spec.	16
Trionyx ferox	10
AVES	
Columba spec.	16
MAMMALIA	
Marsupialia	
Dasypus novemcinctus (preserved embryos)	12
Didelphys virginiana (Nov.-March)	10
Didelphys virginiana (preserved embryos, large)	12
Chiroptera	
Corynorhinus macrotis	11
Eptesicus fuscus	11
Lasiurus borealis	11
Myotis (6 spp.)	11
Pipistrellus subflavus	11
Primates	
Rhesus monkeys (♂ and ♀, 3—6 Lb.)	17
Lagomorpha	
Oryctolagus cuniculus	16, 38
Oryctolagus cuniculus (inbred strains)	8
Oryctolagus cuniculus (4 strains, one inbred since 1937; limited numbers, autumn and winter)	35
Rodentia	
Rodentia (different spp., many tumour-bearing lines)	28
Cacia cobaya	16, 38
Cavia cobaya (pure strain)	10
Cavia cobaya (some strains; limited numbers)	35
Cricetus spec.	16
Cricetus auratus	10, 36[9]
Cricetus auratus (♂♂ only)	35

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[6] in exchange for Ambystoma mexicanum (albino and normal).

[7] in exchange for any other spec. of Triturus.

[8] in exchange for pig embryos, 7 mm, 10 mm, and 15 mm.

[9] in exchange for mature Xenopus laevis or Wistar strain rats.

Meriones lybicus	40
Mus musculus	38
Mus musculus (BALB, C 57 BL, C 3 H, CBA)	4
Mus musculus (inbred strains)	8
Mus musculus (pure strain)	10
Mus musculus (white)	16
Mus musculus (several inbred strains and their F 1 bastards)	35[10]
Mus rattus	38
Mus rattus (white)	16
Mus rattus (white, pure strain)	10
Mus rattus (some inbred strains)	35

Carnivora

Felis domesticus	38
Mustela putorius (autumn and winter)	35
Mustela putorius x Mustela putorius furo (hybrid; limited numbers, autumn and winter)	35

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[10]) to be ordered far in advance.

B. LIST OF NAMES AND ADDRESSES

(geographical order)

AFRICA

South-Africa

1.* EDUCA PRODUCTS (Pty.) Ltd., P. O. Box 3538, CAPE TOWN

N. AMERICA

Canada

2. DEPT OF ZOOL., Univ. of British Columbia, VANCOUVER 8, B.C.

United States

3.* J. V. MASSEY, Jr., Fairfield Laboratories, Main Street, BRIDGEPORT, Conn.

4. SHANKLIN BIOL. LAB., Wesleyan University, MIDDLETOWN, Conn.

5. DIV. OF BIOL. AND MED. RES., ARGONNE NAT. LAB., P.O. Box 299, LEMONT, Ill.

6.* GENERAL BIOLOGICAL SUPPLY HOUSE, 761—763 E., 69th Place, CHICAGO 37, Ill.

7.* QUIVIRA SPECIALTIES CO., 4204 West 21st Street, TOPEKA, Kan.

8.* SUPPLY DEPT, ROSCOE B. JACKSON MEM. LAB., BAR HARBOR, Me.

9.* SUPPLY DEPT, MARINE BIOL. LAB., WOODS HOLE, Mass.

10.* CAROLINA BIOLOGICAL SUPPLY CO., ELON COLLEGE, N.C.

11.* J. C. NICHOLLS, Jr., Zoological Collector, MURPHY, N.C.

12.* SOUTHWESTERN BIOLOGICAL SUPPLY CO., P.O. Box 4084, St. A, DALLAS 8, Tex.

13.* EARLE JARVIS, Zoological Collector, ALBURG, Vt.

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* Biological Supply Houses, Zoological Collectors, etc.

14. COLL. OF MED., Univ. of Vermont, BURLINGTON, Vt.
15.* NORTHWESTERN BIOL. SUPPLY CO., Route 3, ANACORTES, Wash.
16.* THE LEMBERGER CO., P.O. Box 482, OSHKOSH, Wis.

ASIA

India

17.* VITA LIMITED, 31 Ropewalk Street, Fort, BOMBAY

Japan

18. DR T. SHIN-IKÉ, Osaka Dental College, HIRAKATA CITY
19. ZOOL. LAB., Fac. of Science, Hiroshima Univ., HIROSHIMA
20. BIOL. INST., Niigata Univ. Fac of Science, NIIGATA
21. PROF. H. SUGINO, Osaka Liberal Arts Univ., Higashisumiyoshiku, Hirano, OSAKA
22. BIOL. INST., Fac. of Liberal Arts, Toyama Univ., Hasumachi 22, TOYAMA
23. DEPT OF BIOL., Fac. of Lib. Arts and Sci., Yamagata Univ., Koshirakawa-machi, YAMAGATA-SHI

Thailand

24. DEPT OF ANAT., Fac. of Med. and Siriraj Hospital, Univ. of Med. Sci., THONBARI

Turkey

25. HYDROBIOL. RESEARCH INST.. ISTANBUL

AUSTRALIA

Australia

26. DEPT OF ZOOL., Univ. of New England, ARMIDALE, N.S.W.

EUROPE

Belgium

27.* REPTILAMPHIBIA (Felix Vandevelde), Remerstraat, BAAL, Brabant

Germany

28. INST. FÜR EXP. KREBSFORSCHUNG, Univ. Heidelberg, Vossstrasse 3, HEIDELBERG
29. ZOOL. INST. der Univ. Köln, Kerpenerstr. 13, KÖLN-LINDENTHAL
30. INST. FÜR ANGEW. ZOOLOGIE der Univ. Würzburg, Röntgenring 10, WÜRZBURG
31. ZOOL. INST. der Univ. Würzburg, Röntgenring 10, WÜRZBURG

Italy

32.* STAZIONE ZOOLOGICA, Villa Comunale, NAPOLI (101)

Netherlands

33. GENETISCH INST. der Rijksuniversiteit, 5e Binnenvestgracht 8. LEIDEN
34. ZOOLOGISCH LABORATORIUM der Rijksuniversiteit, Janskerkhof 3, UTRECHT
35.* CENTRAAL PROEFDIERENBEDRIJF T.N.O., Biltstraat 172. UTRECHT

Poland

36. BIOL. INST., Medical Academy, ul. Kopernika 7, KRAKÓW

Spain

37.* HERMANN GRÜN, Linares de Riofrio, SALAMANCA

Sweden

38. DEPT OF ANAT., Univ. of Uppsala, UPPSALA

United Kingdom

39. DEPT OF ZOOL., Queen Mary College, Univ. of London, Mile End Road, LONDON E. 1.
40.* THE NEW COLLEGE ANIMAL HOUSE, St. Bartholomew's Hospital Med. Coll., Charterhouse Square, LONDON E.C. 1.

General questions and announcements

I The Hubrecht Laboratory

From January 15th till August 15th, 1956 the second international team work on embryology was held in Utrecht under the direction of Dr. M. E. Rawles (Baltimore, Md., U.S.A.) and Dr. P. D. Nieuwkoop. The team consisted of eight members from seven countries of four continents, viz.:

Mr. R. Azoubel (B.M.), Recife, Brasil
Miss I. Büyüközer (M.D.), Ankara, Turkey
Mr. H. U. Koecke (Ph.D.), Cologne, Germany
Mr. E. Y. Mina (M.D.), Alexandria, Egypt
Miss I. Oikawa (Ph.D.), Kōchi, Japan
Miss M. Richter (B.Sc.), Amsterdam, Netherlands
Mr. T. Seno (B.M.), Maebashi, Japan
Mr. P. H. S. Silver (Ph.D.), London, England

The topic of this team work was: "A causal analysis of the development and differentiation of the neural crest in Vertebrates."

Only a short joint note will appear, giving the distribution of the various subjects among the members of the team. The members will publish their work individually in due course.

A third international team work on embryology will be held from March 15th till September 15th, 1958 under the direction of Prof. Dr. Chr. P. Raven and Dr. P. D. Nieuwkoop (both at Utrecht, Netherlands). The topic of this team work will be: "A morphological and physiological analysis of regulative and non-regulative processes in the development of "mosaic" eggs of several terrestrial and freshwater invertebrates."

Postgraduates, interested in participation in this team work are kindly requested to send in preliminary applications *at their earliest convenience.* Preliminary applications must be sent in before May 1st, definitive applications before September 15th, 1957.

Applications should be accompanied by two letters of recommendation by well-known scientists, and should contain extensive information about scientific education and personal record.

Further details and information will be given in a general circular, which will be distributed in the beginning of 1957.

II The Central Embryological Library and the Central Embryological Collection

For data regarding these two institutions we refer to the sixth full issue, 1955, page 182—183.

III The Normal Table of Xenopus laevis

We have the pleasure to announce that this composite work has now appeared under the title "NORMAL TABLE OF XENOPUS LAEVIS (DAUDIN). A systematical and chronological survey of the development from the fertilized egg till the end of metamorphosis", edited by P. D. Nieuwkoop and J. Faber. The book, which comprises 244 pages and 10 plates, is sold at a price of

Guilders 22.75 ($ 6.00; 46 s.). Orders should be sent only to the publishers: North-Holland Publishing Company, Nieuwe Zijds Voorburgwal 68—70, Amsterdam-C., Netherlands.

The book consists of the following chapters: General Introduction; The Organization of the Normal Table Project; Material; The Taxonomic Position and Geographical Distribution of the Genus Xenopus; Some Ecological Data and Methods of Rearing of Xenopus Laevis under Laboratory Conditions; The Systematic Description of the Internal Development of Xenopus Laevis (146 pages); External and Internal Stage Criteria of the Development of Xenopus Laevis (27 pages); A Comparative Table of Anuran Normal Tables; A Bibliography of Anuran Development (Systematically Arranged) (46 pages); Index.

Reviews of recently published books on development and related subjects

Group A (books for instruction):

BARGMANN, W., 1956 — "Histologie und mikroskopische Anatomie des Menschen" (second revised edition)

WADDINGTON, C. H., 1956 — "Principles of Embryology"

WITSCHI, E., 1956 — "Development of Vertebrates"

WRETE, M., 1955 — "Die kongenitalen Missbildungen"

Group B (books for scientific workers):

HADORN, E., 1955 — "Letalfaktoren"

ROTHSCHILD, Lord, 1956 — "Fertilization"

WINDLE, W. F. (editor), 1955 — "Regeneration in the central nervous system"

"HISTOLOGIE UND MIKROSKOPISCHE ANATOMIE DES MENSCHEN"

2nd revised edition, 1956

by W Bargmann	Georg Thieme Verlag
796 pp. with 640 figs, partially in colour	Stuttgart Price: D.M. 69.60

The first edition appeared in 1951. The author has tried to bring the reader into contact with the dynamic and functional aspects of histology and microscopical anatomy, and to bring these in connection with physiology and physiological chemistry, and with submicroscopical morphology. In this second edition, in particular the new fields of electron microscopy and cyto-chemistry have been incorporated.

This handbook, which is so well organized and so richly illustrated with carefully selected figures from handbooks and publications of other authors, and from the author's own work, can be recommended warmly to all students in and outside Germany who are able to read German. Text and figures actually lead to a dynamic and functional appreciation of this field of morphology, on the success of which we should like to congratulate the author. Each chapter closes with an extensive list of references, which also makes this work very valuable. We should like to suggest, however, that in future editions more developmental aspects be introduced (as is done e.g. for the formation of the teeth), aspects which will certainly facilitate the understanding and appreciation of the often very complex adult structures and structural elements, and which will more easily link histology and microscopical anatomy with macro-anatomy, for which an extensive knowledge of the development is indispensable.

P. D. NIEUWKOOP

"PRINCIPLES OF EMBRYOLOGY"

1956

by C. H. Waddington
510 pp. with 186 figs

George Allen & Unwin Ltd
London
Price: 45 s.

This textbook has been written for students specializing in this field as well as for research workers in other branches of biology, who want to become acquainted with the present state of knowledge in the field of development.

This textbook is however not intended to be the student's first contact with embryology, but has been written for the later university years.

In contradistinction to other textbooks of embryology in which the descriptive data usually form the main body of the book, the author has put the emphasis upon the results of causal analysis, results which have by now given us an insight into many developmental events. We completely agree with the author that it is of very great importance that students become well acquainted with descriptive as well as experimental embryology.

It is easily understandable that in the systematic part of the book those groups on which the author himself has carried out original work, have received some extra attention. We feel, however, that in a general textbook one should try to give each group equal attention as far as the actual facts are concerned. In this respect we differ in opinion from the author.

The second part of the book, in which the fundamental mechanisms in development are discussed, gives a very interesting survey of our present knowledge and understanding, showing the ever-increasing complexity of the problems concerned. It has been the great merit of the author to have synthesized the results obtained in the fields of genetics and embryology, for which we want to express our great satisfaction and admiration. It is evident that a similar synthesis of morphological and biochemical data is not yet possible, the latter still being much too fragmentary.

Not only students, but also many colleagues will be very thankful for the author's attempt to bring the various fundamental aspects of development together in this textbook. We sincerely hope that this book will find a wide distribution in biological as well as medical and veterinary institutitons.

As a technical remark we must say that we feel it would have been better, notwithstanding a slight increase in the price, to print such a valuable work on better paper. This would also have allowed a much better reproduction of the figures, which are sometimes too much schematized.

P. D. NIEUWKOOP

"DEVELOPMENT OF VERTEBRATES"

1956

by E. Witschi
588 pp. with 370 figs

W. B. Saunders Company
Philadelphia, London
Price: ?

This textbook of embryology has been written for premedical students and zoology majors who have completed a course in general biology, and intends to show the reader that the process of development is widely open to scientific analysis.

After some general chapters on spermato- and ovogenesis, fertilization, and cleavage and gastrulation, the development of the amphibians, birds and mammals is treated extensively, using normal stages and stage maps as a basis for comparison, while some separate chapters are devoted to human development. In this textbook a little too much emphasis has been laid on reproduction and the role of the endocrine system, which is, however, something we can easily forgive the author, who has devoted a lifetime to these particular aspects of development.

Notwithstanding the rather personal character of this textbook, the appreciation of which may vary among individual readers, we feel very satisfied as to the synthesis of experimental and descriptive data, which gives the reader a very good insight into the causal relationships which play such an important role in the development of the complexity of the organism. The carefully selected and newly prepared figures illustrate the text in a very pleasant and constructive way.

We feel, however, rather strong objections against the author's conception of the relationships between ontogeny and phylogeny. A direct comparison of certain developmental stages of higher vertebrates with adult forms of lower groups of animals (called "corresponding ancestors") is too great a simplification and popularization of the highly complex nature of phylogeny as well as development, for this to appear in a scientific textbook of this standard.

As a purely technical point we should like to suggest that the author should in future editions avoid the combination of figures of different magnification in one text figure, and the insertion of tex figures ino a text in which they do not belong.

Finally we should like to suggest that the author might, in future editions, insert literature references directly in the text of the various chapters instead of giving a bibliography at the end of the book with reference to corresponding chapters. We fear that otherwise very few students will find the rather difficult way to the original literature.

P. D. NIEUWKOOP

"DIE KONGENITALEN MISSBILDUNGEN, IHRE URSACHEN UND PROPHYLAXE, ein kurzes Lehrbuch für Studierende und Ärzte"

1955

by M. Wrete
321 pp. with 284 figs

Almquist & Wiksell
Stockholm
Price: ?

This concise textbook has been written for preclinical students, but may also be useful for clinical students and physicians as a compact reference work in this rather neglected field.

Whereas in the past the operative correction of malformations formed almost the only practical interest, the progress in our knowledge of the genetical and environmental factors which can play a role in their formation has opened a wide field for prophylactic treatment.

In this work the author has restricted himself to those developmental disturbances, which are present at birth or which appear soon afterwards.

The second part of the book, in which the individual malformations, arranged according to organ systems, are described, comprises 5/6 of the entire work, whereas the general part, in which are discussed subjects like vitality, genetically and environmentally condtioned malformations, their causes, their frequency and their prophylactic treatment, takes up only the first 40 pages. The emphasis in this book therefore strongly lies on the descriptive part.

Although we appreciate the comprehensive character of the systematic part of this textbook, which is richly illustrated, we cannot conceal that a causal-analytical treatment of the various types of malformations with emphasis upon their genesis would have given the reader a much deeper insight.

We should also like to suggest that the author, in future editions, should either insert bibliographical references in the text of the various chapters, or arrange the bibliography in a systematic, instead of in the alphabetical order.

P. D. NIEUWKOOP

* * *

"LETALFAKTOREN in ihrer Bedeutung für Erbpathologie und Genphysiologie der Entwicklung"

1955

by Ernst Hadorn
338 pp. with 129 figs

Georg Thieme Verlag
Stuttgart
Price: D.M. 39.—

Lethal factors form a rather arbitrary group among the Mendelian factors. They distinguish themselves from other factors only by the fact that they condition death at a developmental stage preceding that of sexual maturity. However, so much interesting and fundamental information has been accumulated regarding these factors during the last decades, that it seems fully justified to devote a special work to the discussion of this group of factors, particularly when this is done by a leading authority in the field.

The present book contains even more than the title suggests. Seen from the viewpoint of the developmental biologist one might say that the book has in fact almost grown into a treatise on the principles of gene physiology, elucidated on the basis of examples furnished mainly by the group of lethal factors. Indeed, the only thing one is inclined to regret is the fact that the author has not proceeded to write a handbook covering the entire field of gene physiology. However, the theoretical basis of the book is so broad that one may safely say that it will be for many years to come one of the principal guides for everyone working in the field of gene physiology. The author deserves gratitude in particular for his clear terminology and for his careful and critical discussion of the fundamental problems and the scope of this field of science.

The book offers a wealth of information to the geneticist, the pathologist, and the embryologist. The latter will profit particularly by the chapters XI to XVII (128 pages), which discuss such subjects as phase specificity of lethal action, cell and organ specificity, pleiotropy, cell autonomy, phenocopy, and biochemical and physiological phenes.

The book is concluded by an additional glossary, to be used in conjunction with the alphabetical index. The bibliography covers 25 pages. The illustrations are excellent, not least because all figures taken over from other authors have been carefully redrawn, which has resulted in a pleasant uniformity of style. The appearance of the book meets the high standard common to all books published by this firm.

J. FABER

"FERTILIZATION"

1956

by Lord Rothschild
170 pp. with 5 pls and 30 diagrs

Methuen & Co. Ltd, London
John Wiley & Sons, Inc., New York
Price: 18 s.

Owing to the size limits imposed on this monograph on fertilization the following subjects had to be omitted: aberrant fertilization in the decapod crustacea and in sponges, aster formation and origin of the first cleavage amphiaster, andro- and gynogenesis, merogony, parthenogenesis and fertilization in plants.

On the basis of the normal morphology of the fertilization process (chapter 1) and the metabolism of eggs (chapters 5 and 6), the metabolic and other changes at fertilization are listed in 25 main points and several sub-points in chapter 7, showing how complex the process must be. This becomes still more impressive when also the physical changes are discussed in chapters 8 and 10. The role of sperm-egg interacting substances is extensively discussed in chapters 2, 3 and 4, while the problem of polyspermy is finally treated in chapter 9. A separate chapter has been devoted to the specificity of fertilization. In the concluding chapter 12 the author indicates a number of subjects for further investigation, which seem of special interest for a better understanding of the process of fertilization.

The fact that no book on fertilization has appeared in the last twenty-five years justifies the appearance of this monograph. The very extensive list of references, which represents only a selection from an even more extensive literature, demonstrates the great need for this short, but nevertheless comprehensive monograph, which will be welcomed by many scientists.

P. D. NIEUWKOOP

"REGENERATION IN THE CENTRAL NERVOUS SYSTEM"

1955

edited by W. F. Windle
311 pp. with 68 figs

Charles C. Thomas
Springfield, Ill., U.S.A.
Price: $ 9.50

In this composite work the editor has brought together contributions by 33 eminent scientists (30 from the United States, one from Canada and two from England), who have come together to discuss this interesting problem at the Medical Institute of Neurological Diseases and Blindness in Bethesda, Md, U.S.A., in May 1954, in order to find new evidence that regeneration can take place in the central nervous system in man, and may be effectively stimulated. This new attack on an old problem finds encouragement from the much more positive results which nowadays rehabilitation programmes have provided for paraplegic patients. The main results of this conference, laid down in this monograph, form an increasing body of evidence that regeneration can occur in the central nervous system of many different vertebrates including man, so that the time seems to be ripe to search for new ways of stimulating regeneration in such a manner that a true restitution of lost functions can be achieved.

Besides this very important main result the present monograph offers a very stimulating and comprehensive survey of the experimental work in the field of regeneration of the central nervous system, which also finds its expression in the very extensive bibliography. The editor has been very successful in organizing the various contributions and making them uniform, so that, thanks also to the excellent printing, this monograph will be an excellent and easy guide into this many-sided problem. We only regret — but understand very well the organisational and technical reasons — that so many european and asiatic scientists, whose names appear so often in the text of the various contributions, have not been able to contribute directly to this conference. We hope however that this monograph will also lead to a revival or intensification of their work.

P. D. NIEUWKOOP

Edited by Dr. P. D. Nieuwkoop
Director of the Hubrecht Laboratory
2 Janskerkhof, Utrecht, Netherlands